REPORT RESUMES

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SINO-AMERICAN CONFERENCE ON INTELLECTUAL COOPERATION, REPORT AND PROCEEDINGS, HELD AT THE UNIVERSITY OF WASHINGTON, JULY 10-15, 1960.
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SCHOLARS FROM THE UNITED STATES AND THE REPUBLIC OF CHINA MET TO DISCUSS INTELLECTUAL COOPERATION AND COMMUNICATION BETWEEN THE TWO COUNTRIES. CONFERENCE PARTICIPANTS (N 76) PLACED EMPHASIS ON THE UNITY OF KNOWLEDGE AND THE UNIVERSALIZATION OF DISCIPLINES. MAJOR RECOMMENDATIONS WERE--(1) MUTUAL AGREEMENT ON OBJECTIVES, ON THE APPROACH, AND ON THE CONCEPTS TO BE USED IN ALL INTELLECTUAL ENTERPRISES, (2) ACTIVE COOPERATION BETWEEN SCHOLARS OF DIFFERENT COUNTRIES IN JOINT RESEARCH ENTERPRISES ON A DISCIPLINARY AS WELL AS A MULTIDISCIPLINARY BASIS, (3) ACCEPTANCE BY THE UNIVERSITY COMMUNITY OF A FULL SHARE IN THE RESPONSIBILITY FOR INTERNATIONAL INTELLECTUAL COOPERATION, AND (4) ESTABLISHMENT OF SOME SORT OF ORGANIZATION IN EACH COUNTRY WHICH WILL REPRESENT AND BE RESPONSIBLE TO ACADEMIC INSTITUTIONS IN ORDER TO CARRY OUT THE RESPONSIBILITY. (TC)

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Sino-American

Conference on Intellectual Cooperation

Report and Proceedings

UNIVERSITY OF WASHINGTON

1960

DR. HU SHIH, *who took an eminent part in the Conference, died suddenly of a heart attack on February 24, 1962, while conducting a meeting of the Academia Sinica in Taipei, Taiwan. His contributions to the Conference will no doubt remain a source of inspiration to all who work for Sino-American Intellectual Cooperation.*

Sino-American Conference On Intellectual Cooperation

Report and Proceedings

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AGENDA

SUNDAY, JULY 10, 1960

Opening Remarks
Charles E. Odegaard, President
University of Washington
"The Chinese Tradition and the Future"
Hu Shih, President
Academia Sinica
"Philosophy, Understanding, and Cooperation"
Charles A. Moore
University of Hawaii

MONDAY, JULY 11, 1960

Morning

Trends and Problems: The United States and China
Chairman: John M. H. Lindbeck
"Some Remarks on the Humanities"
Mao Tzu-shui
"The Place of the Social Sciences"
Harold D. Lasswell
"The Place of Science in Modern Life"
John A. Wheeler

Afternoon

Comment and Discussion
Chairman: Tingfu F. Tsiang
Rapporteur: Horst Frenz
Discussion

TUESDAY, JULY 12, 1960

Morning

Cultural Cooperation: Problems, Needs, Objectives

"The Humanities"

Chairman: Shen Kang-peh

Rapporteur: H. G. Creel

Discussion

Afternoon

The Social Sciences

Chairman: Joseph L. Sutton

Rapporteur: Yang Lien-sheng

Discussion

WEDNESDAY, JULY 13, 1960

Morning

The Natural Sciences

Chairman: Lynne L. Merritt

Rapporteur: Chien Shih-liang

Discussion

Afternoon

Proposals for Future Intellectual Cooperation

Chairman: Li Chi

Rapporteur: Franz Michael

Discussion

THURSDAY, JULY 14, 1960

Morning and Afternoon

Committee Meetings

Committee on the Humanities, *Chairman,* F. W. Mote

Committee on the Social Sciences, *Chairman,* Li Choh-ming

Committee on the Natural Sciences, *Chairman,* Henry S. Frank

FRIDAY, JULY 15, 1960

Morning

Chairman: Bryce Wood

Report of the Committee on the Humanities, Hellmut Wilhelm

Report of the Committee on the Social Sciences, Li Choh-ming

Report of the Committee on the Natural Sciences, Henry S. Frank

Discussion of Reports and Proposals

Adjournment

REPORT ON THE CONFERENCE

by GEORGE E. TAYLOR
UNIVERSITY OF WASHINGTON

1. *The role of the university in international intellectual communication*

Two academic institutions of the Republic of China and eight American universities sponsored a Sino-American Conference on Intellectual Cooperation, held in Seattle, July 10-15, 1960. The purposes of the Conference were (a) to discuss the scholarly and professional problems of international intellectual communication and cooperation in general; (b) to make recommendations concerning the intellectual relations between Free China and America.

There is a growing realization in America that international intellectual cooperation is important and that universities must accept much of the responsibility. The state of the world today is such that it is imperative that the intellectuals of the Free World make their fullest contribution to our common intellectual life, a common intellectual life based on cultural pluralism. It is no accident that since the end of World War II there has been more organized contact between intellectuals of Europe and America than at any previous time in history and that the same is true, though on a lesser scale, of Asia. Some of the reasons are obvious. The reconstruction of Europe spawned numerous programs for technical assistance which brought the professional classes, the academicians, and the technicians of Europe and America into close contact. The Fulbright program alone has created a movement of American scholars to various parts of the world and of foreign scholars to the United States. With the help and the initiative of private foundations, many refugee scholars from Europe and Asia have been resettled in the Free World, and these scholars have had the opportunity to make productive use of their talent. Conferences of intellectuals have been going on all over the world under the auspices of such organizations as The Congress for Cultural Freedom. It is not too much to say that the growing communication between the intellectuals of the world today is laying the foundation for a common intellectual life in the Free World. Common problems, common needs, and common undertakings have expressed and encouraged the growth of common values. These values are articulated by intellectuals.

The political pressures of the period since the war have brought about the growth of supranational institutions in Europe and Asia, and to some extent in the Americas. There has been a measurable erosion of the attributes of the nation-state as a political organization at a time when nationalism in some areas is supposed to be on the march. Charles Malik has argued that if we examine the hundred most important decisions made by the United Nations we will find that the voting has gone not by states but by cultural blocs. Certainly it is clear that in the Free World there is a strong movement toward closer cultural relationships and a growing urge to find some sort of unifying political philosophy based on cultural and political pluralism.

Intellectual contact and cooperation does not take place through unilateral action. To provide for a free exchange of ideas, especially among different cultures, requires appropriate forms and occasions in a favorable institutional setting. In this task it is clear that the universities have a special responsibility to create conditions under which scholars from various countries can discuss their common purposes and problems. This is not to say that university initiative should be in competition with that of governments or private foundations. On the contrary, the more university communities themselves are aware of their responsibilities in this field, the better they will be able to cooperate with the non-university agencies in a common task.

2. *The problem and the conference*

The nature of the problem determined the structure of the Conference. As intellectual cooperation presupposes a basis for intellectual communication, it seemed wise to have each national delegation of scholars as representative as possible of all the branches of learning in our respective countries. It was arbitrarily decided that each delegation should be divided into three equal groups of scholars representing the humanities, the social sciences, and the natural sciences. By confronting scholars representing the main branches of learning with the common problems of intellectual communication, the emphasis came to rest on the traditional problem of the unity of knowledge, the universalization of the disciplines, and on how to overcome, as Professor Lasswell put it, our "bi-lateral parochialism."

For this reason the first three days of the Conference were devoted to general discussion, in plenary sessions, of the trends in the various disciplines and to such problems as the tension between over-specialization and interdisciplinary synthesis and the effect of international cooperation on the growth of the disciplines. The last two days of the Conference were devoted to the discussion of concrete proposals for ways of solving the problems of intellectual communication and cooperation between the United States and the Republic of China.

The following report follows the organization of the Conference agenda. It is felt that by presenting the materials in this way the intellectual contribution of the Conference will be more clearly perceived than it would be if the discussions were arbitrarily brought together under certain categories.

The discussion is therefore presented in its natural sequence. In the report we have tried to do justice to the discussion of the first three days in order to make clear that the main task was to clarify the conceptual framework of intellectual communication and cooperation. Discussion of well-established programs and techniques of intellectual cooperation was secondary.

3. *Main recommendations*

The Conference regarded the following as essential to intellectual communication and cooperation:

1. Mutual agreement on objectives, on the approach, and on the concepts to be used in all intellectual enterprises.

2. Active cooperation between scholars of different countries in joint research enterprises on a disciplinary as well as a multi-disciplinary basis.

3. Acceptance by the university community of a full share in the responsibility for international intellectual cooperation.

4. Establishment of some sort of organization in each country which will represent and be responsible to academic institutions in order to carry out the responsibility. With this in mind the Conference strongly supported (a) the establishment on Taiwan of a permanent Center for Research in the Social Sciences and Humanities; (b) the setting up of a Coordinating Committee for International Intellectual Cooperation in the United States, possibly under the auspices of the American Association of Universities.

The delegates left the Conference with the feeling that representative intellectuals from both Free China and the United States were determined to extend and deepen the present efforts at international cooperation in the fields discussed and were prepared to take definite steps toward the achievement of that goal. For this purpose the Conference set up a Continuing Committee drawn from the sponsoring institutions.

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OPENING REMARKS

by **Charles E. Odegaard**

PRESIDENT, UNIVERSITY OF WASHINGTON

Distinguished guests from Taiwan and from various states of the United States, I have the privilege of standing before you this afternoon as one president out of eight on the American side involved in arranging for this Conference. The American universities which are co-sponsors of this Conference range from the Atlantic to the Pacific, and following that direction from East to West, they are Harvard University, Princeton University, Cornell, Michigan, Indiana, Chicago, University of California, and the University of Washington. I think it is very fitting that we should be met here in Seattle, which certainly is one of the gateways to the Orient in so far as the United States is concerned. One cannot live in the city of Seattle for long without realizing that the Western and Eastern worlds are in intimate contact with one another and are indeed part of the same world. But, of course, the other universities participating in this Conference as host institutions are themselves very much involved in seeking out intellectual contacts with Asian universities, and in particular with the Chinese traditions, and it is natural, therefore, that they should serve as co-hosts of this Sino-American Conference.

In standing before you at this moment, I take a particular gratification because I am currently President of the International Council for Philosophy and Humanistic Studies; and, for a dozen years at least, I have been involved in one way or another in various types of procedures by which we have been trying in many countries of the world to bring together intellectuals, men of understanding, men who are seeking wisdom and knowledge so that they can exchange it for the benefit of mankind. So I have a particular reason, apart from being President of the University of Washington, to have an interest in the intellectual adventure which begins this afternoon. It is, therefore, with a very warm heart that I welcome all of you here.

We are very pleased to have here participants from a number of other universities and educational institutions of the United States to meet with our friends from Taiwan for a discussion of intellectual relations over a broad range of human inquiry. I am also able to offer you words of congratulation and best wishes by virtue of a telegram which I received today from Taipei. It is from Dr. Mei I-chi of the Ministry of Education. The telegram reads: "To members of the Sino-American Conference on Intellectual Cooperation: Hearty congratulations and best wishes for success of the Conference."

We will try to keep the weather pleasant and to provide you with the circumstances for a pleasant stay here. I know that the real reward of the Conference will be the discussion that will take place among the members and participants.

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THE CHINESE TRADITION AND THE FUTURE

by Hu Shih

PRESIDENT, ACADEMIA SINICA

On behalf of the Chinese members of the Conference, I wish to say that we all want to voice our warm and sincere appreciation to the University of Washington for its initiative and active leadership in calling and organizing this Sino-American Conference on Intellectual Cooperation. The inspiration originally came from George Taylor, but without the hearty support of President Odegaard of the University of Washington and President Chien Shih-liang of the National University of Taiwan, the Conference would have been impossible. Let us all hope that the results of our five-day Conference may not fail to justify the idealistic expectations of the founders and the co-sponsors of this bold experiment in international intellectual cooperation.

I deeply appreciate the great honor of being asked to make one of the opening speeches of this Conference. But I must say that the subject assigned to me is a very difficult one: "The Chinese Tradition and the Future." What is the Chinese Tradition? And what of its Future? Either one of the two questions will be a sufficient challenge to our thinking. And here I am asked to answer both questions in a brief ceremonial opening speech! I am certain of my failure. I can only hope that my failure may provoke the best minds of the Conference to do further and more thorough thinking on this important question.

I.

The Chinese Tradition

I propose today to view the Chinese tradition, not as something ready made and static, but as the culminating product of a long series of important historical changes or evolutions. This historical approach may turn out to be a fruitful way to achieve a better understanding of the Chinese tradition, of its nature, its merits and defects, all in the light of the historical changes that have made it what it is.

The Chinese cultural tradition, it seems to me, is the end-product of these significant periods of historical evolution:

(1) The Sinitic Age of antiquity, which, as archeological evidences have abundantly shown, had already developed in the Yin-Shang period a highly advanced civilization with its fully developed stone sculpture and bone carving, its beautiful workmanship in the bronze vessels, its well-advanced picto-ideographic language as shown in the many thousands of oracular bone inscriptions, and its extravagant state religion of ancestral worship which apparently included human sacrifice on a fairly big scale. Later, in the great Chou period, civilization continued to develop in all directions.

Many feudal principalities grew into great nations, and the co-existence and rivalry of powerful independent states tended to promote the flowering of the arts of war and of peace. Statecraft flourished and talents were encouraged. *The Book of Three Hundred Poems* was becoming the common textbook of language education. The age of poetry was leading to the age of philosophy.

(2) The Classical Age of indigenous philosophical thought, which was the age of Lao-tzu, Confucius and Mo Ti, and their disciples. This age left to posterity the great heritage of Lao-tzu's naturalistic conception of the universe and his political philosophy of non-interference or *laissez-faire*; the heritage of Confucius' humanism, his conception of the dignity and worth of man, his teaching of the love of knowledge and the importance of intellectual honesty, and his educational philosophy that "with education, there will be no classes"; and the heritage of the great religious leader Mo Ti, who opposed all wars and preached peace, and who defended and elevated the popular religion by preaching the Will of God which he conceived to be the love of all men without distinction.

There is no doubt that the ancient civilization of China underwent a fundamental transformation through those centuries (600-220 B.C.) which constituted the Classical Age of Chinese Thought. The basic characteristics of the Chinese cultural tradition were more or less shaped and formed by the major philosophical teachings of the Classical Age. In subsequent periods, whenever China had sunk deep into irrationality, superstition and other-worldliness, as she actually did several times in her long history, it was always the humanism of Confucius, or the naturalism of Lao-tzu and the philosophical Taoists, or a combination of both naturalism and humanism, that would rise up and try to rescue her out of her sluggish slumbers.

(3) The third important historical evolution was the unification of the warring nations by the militaristic state of Ch'in in 221 B.C., the founding of the second or the Han Empire in 206 B.C., and the subsequent more than twenty centuries of Chinese life and experience under a huge unified empire, with no neighboring countries having any civilization comparable to the Chinese. This long and rather unique political experience of an isolated empire life, removed from the lively rivalry and competition of the independent and contending nations which had produced the Classical Age of Chinese thought, was another important formative factor in the make-up of the Chinese tradition.

A few resulting features may be cited here. (a) China never succeeded in solving the problem of the unlimited power of the hereditary monarch in a huge unified empire. (b) A redeeming feature was the conscious adoption of the political theory of *Wu-wei* (non-interference) in the early decades of the Han Empire (200 B.C.-220 A.D.), thus establishing the political tradition of leaving much *laissez-faire*, freedom, and local self-government in the administration of an immense empire without a huge standing army and without benefit of a huge police force. (c) Another redeeming feature was the gradual development of a system of open and competitive examinations for the selection of men for the civil service, thus inaugurating the first civil service examination system in the world. (d) A uniform code of law was worked out in the Han Empire, and that code was revised from time to time throughout the later dynasties. The Chinese legal system, however, was defective in its failure to permit public pleading and to develop the profession of lawyers. (e) Another important feature of empire life was the long continued use of the dead classical language as the language of the civil service examinations, and as the common written medium of communication within the large unified empire. For over two thousand years, the dead classical language of ancient China was maintained as the recognized tool of education and as the respectable medium for all poetry and prose.

(4) The fourth important historical evolution actually amounted to a revolution in the form of a mass conversion of the Chinese people to the alien religion of Buddhism. The indigenous religion of ancient China, which had neither the conception of Heaven in the sense of Paradise, nor that of Hell as the place of Last Day Judgment, was easily overwhelmed and conquered by the great religion of the Buddha with all its rich imagery, its beautiful ritualism, and its bold cosmology and metaphysics. Buddhism gave to China not only one Paradise, but tens of paradises; not only one Hell, but many hells, each varying in severity and horror from the others. The old simple idea of retribution, of good and evil, was soon replaced by the idea of transmigration of the soul and the iron law of *Karma* which runs through all past, present, and future existences. The ideas of the world as unreal, of life as painful and empty, of sex as unclean, of the family as an impediment to spiritual attainment, of celibacy and mendicancy as necessary to the Buddhist life, of alms-giving as a supreme form of merit, of love extended to all sentient beings, of vegetarianism, of the most severe forms of asceticism, of words and spells as having miraculous power; these and many other items of un-Chinese beliefs and practices poured from India by land and by sea into China and were soon accepted and made into parts of the cultural life of the Chinese people.

It was a real revolution. The Confucianist *Book of Filial Piety*, for instance, had taught that the human body is inherited from the parents, and must not be annihilated or degraded. And ancient Chinese thinkers had said that life is of the highest value. Now Buddhism taught that life is an illusion, and that to live is pain. Such doctrines led to practices which were definitely opposed to the Chinese tradition. It soon became a form of "merit" for a Buddhist monk to burn his own thumb, or his own finger or fingers, or even his whole arm, as a sacrifice to one of the Buddhist deities! And sometimes, a monk would publicly announce the date of his self-destruction, and, on that day, would light his own faggot pyre with a torch in his own hand, and would go on mumbling the sacred names of the Buddhas until he was completely overpowered by the flames.

China was being Indianized, and was going mad in one of her strange periods of religious fanaticism.

(5) The next important historical evolution may be described as a

series of China's revolts against Buddhism. One of these revolts took the form of the founding and the spread of the medieval religion of Taoism. Religious Taoism was originally a consolidated form of the native beliefs and practices, freshly inspired by a nationalistic desire to supersede and kill the foreign religion of Buddhism by imitating every feature of it. The Taoists accepted the heavens and hells from Buddhism, gave them Chinese names, and invented Chinese gods to preside over them! A Taoist canon was consciously forged after the model of the Buddhist sutras. Many Buddhist ideas, such as the transmigration of the soul and the causal chain running through past and future lives, were bodily appropriated as their own. Orders of priests and priestesses were established after the fashion of the Buddhist Brotherhoods of monks and nuns. In short, Taoism was a nationalistic movement to boycott Buddhism by manufacturing an imitation product to take over its market. Its real motive was to kill this invading religion, and it was well known that Taoist influence played an important part in all the governmental persecutions of Buddhism, notably in those of 446 and 845.

Other Chinese revolts against Buddhism took place within Buddhism itself. A common feature in all such revolts was the discarding of what the Chinese people could not swallow and digest in Buddhism. As early as the fourth century A.D., Chinese Buddhists had begun to realize that the essence of Buddhism lies in Meditation and Insight, both of which are combined in *dhyāna* or *ch'an* (*zen* in Japanese pronunciation), which means meditation but which also relies on philosophical insight. From A.D. 400 to 700, the various Chinese schools of Buddhism (such as the Lanka School founded by Bodhidharma and the T'ien-t'ai School) were mostly schools of Ch'an (Zen).

What came to be known as the "Southern School" of Ch'an (Zen)—which after the eighth century has come to monopolize the name Ch'an (Zen)) to itself—went even farther and declared, as did the monk Shen-hui [670-762] (who, according to my researches, was the real founder of this school), that insight alone was enough, and meditation could be discarded.

The entire movement of the so-called "Southern School" was founded on a series of successful lies and forgeries. Its story of Bodhidharma was a lie; its story of the 28 Indian patriarchs was a forgery; its story of the apostolic succession through the transmission of an apostolic robe was a fraud; its life-story of the "Sixth (Chinese) Patriarch" was largely pure fiction. But the greatest of all its fabrications was the story of the origin of Ch'an (Zen), which runs as follows: The Buddha was preaching on the Mount of the Holy Vulture. He simply lifted a flower before the assembly, and said nothing. Nobody understood him. But the wise Mahakasyapa understood him, and smiled a smile at the Master. That was supposed to be the origin and the beginning of Zen!

The historical significance of this Zen movement lies in the war cry that "It relies on no words, spoken or written, but points direct to the heart." It has no use for the voluminous and never-ending scriptures, which, by the eighth century, must have amounted to 50 million words in preserved

Chinese translations (not counting the tens of millions of words in the Chinese commentaries). What a wonderful revolution! Blessed be those wonderful liars and forgers whose ingenious lies and forgeries could achieve a revolution that discarded a sacred canon in 50 million words!

(6) The next great historical evolution in the Chinese tradition may be described as "The Age of Chinese Renaissance," or "The Age of Chinese Renaissances." For there was more than one renaissance or rebirth.

First, there was the Renaissance in Chinese literature which began in earnest in the eighth and ninth centuries, and which has been continued to our own times. The great poets of the T'ang Dynasty—Li Po and Tu Fu in the eighth century, and Po Chü-i in the ninth—opened up a new age of Chinese poetry. Han Yü (d. 824) succeeded in revitalizing the "classical prose" (ku-wen) and made it a useful and fairly effective tool for prose literature for the next 800 years.

It was the Zen monks of the eighth and ninth centuries who first made use of the living spoken tongue in their recorded discourses and discussions. This use of living prose was continued by the great Zen masters of the eleventh century and was taken up by the Neo-Confucianist philosophers of the twelfth century, whose conversations were often recorded as they were actually spoken.

The common man and woman always sang their songs and told their tales in the only language they knew, namely, their own spoken tongue. With the development of the art of block-printing in the ninth century and of printing with movable type in the eleventh century, it became possible to have the popular or "vulgar" tales, stories, dramas, and songs printed for a wider audience. Some of the popular tales and great novels of the sixteenth and seventeenth centuries became best sellers for centuries. These novels and tales became the standardizers of the written form of the living spoken tongue. They have been the teachers and the popularizers of the vulgar tongue, the *pai hua*. Without those great tales and novels it would have been impossible for the modern movement for a literary renaissance to succeed in the brief space of a few years.

Second, there was the Renaissance in Chinese philosophy which attained its maturity in the eleventh and twelfth centuries and which gave rise to the various schools and movements of Neo-Confucianism. Neo-Confucianism was a conscious movement for the revival of the pre-Buddhist culture of indigenous China to take the place of the medieval religions of Buddhism and Taoism. Its main object was to restore and re-interpret the moral and political philosophy of Confucius and Mencius as a substitute for the selfish, anti-social and other-worldly philosophy of the Buddhist religion. Some Zen monk had remarked that the teachings of the school of Confucius were too simple and insipid to attract the best minds. The task of the Neo-Confucianists, therefore, was to make the secular thought of a pre-Buddhist China as interesting and attractive as Buddhism or Zen. And those Chinese philosophers did succeed in working out a secular and rational philosophy of Neo-Confucianism with a cosmology, a theory, or theories, of the nature and method of knowledge, and a moral and political philosophy.

Various schools grew up largely because of the different viewpoints about the nature and method of knowledge. All that made matters more interesting and exciting. In the course of time, the schools of Neo-Confucian philosophy were able to attract to themselves the best minds of the nation, which no longer flocked to the Zen Masters in the Buddhist monasteries. And, when the best minds ceased to be interested in Buddhism, that once great religion gradually faded into nonentity and died an almost unmourned death.

And third, there was the third phase of the Chinese Renaissance which can be characterized as "The Revival of Learning" under the impetus of a scientific method—the method of "evidential investigation."

"No belief without evidence" *(wu cheng tse pu hsin)* is a well-known quotation from an early post-Confucian work. And Confucius himself emphatically said: "To say that you know a thing when you know it, and to say that you do not know when you do not know it: that is knowledge." But such injunctions on veracity and evidence seemed to have been easily swept away by the powerful tides of religious fanaticism and pious credulity which overwhelmed medieval China. The method and habit of thinking in terms of evidences, which barely survived in the wisest judges of the law courts, were fortunately kept up in some of the best schools of classical scholarship. With the spread of the printed book, it became easy for the Chinese scholar to compare references, collate texts, and collect and evaluate evidences. Within the first two or three centuries of book-printing, the spirit and method of evidential thinking and evidential investigation could already be discerned in the founding of Chinese archeology, in the writing of a great history on the basis of carefully compared and evaluated sources and evidences, and in the rise of a new classical scholarship which was courageous enough to apply that spirit and methodology to the examination of a few of the sacred books of the Confucianist Canon. One of the founders of this new classical scholarship was Chu Hsi (1130-1200), the greatest of the Neo-Confucian philosophers.

The method of evidential investigation *(k'ao-cheng* or *k'ao-chü)* was consciously developed in the seventeenth century, when one scholar would cite 160 evidences to establish the ancient pronunciation of a single word, and another would devote decades of his life to collecting evidences to prove that almost half of a major classic of the Confucian Canon was a fairly late forgery. The method proved to be so efficacious and fruitful that it became the intellectual fashion of the scholars of the eighteenth and nineteenth centuries. The whole era of 300 years (1600-1900) has often been labeled the age of evidential investigation.

II.

THE GREAT CONFRONTATION AND THE FUTURE

The above historical account brings the Chinese traditional culture to the eve of the last period of historical change—the era of confrontation and conflict of the Chinese and Western civilizations. The West's first contacts with China and the Chinese civilization had already begun in the sixteenth century. But the era of real confrontation and conflict did not begin until the nineteenth century. In this one century and a half, the Chinese tradition has undergone a real test of strength, indeed, the most severe test of strength and survival in her entire cultural history.

From our historical sketch, we have seen that the indigenous civilization of ancient China, having been richly nourished and properly inoculated by the Classical Age, was sufficiently competent to meet the cultural crisis brought about by the invading religion of Buddhism. Because of the extreme simplicity of the native religion, however, the Chinese people were for a time overwhelmed and conquered by the highly complicated and attractive religion of Buddhism. And, for nearly a thousand years, China accepted almost everything that came from India, and her cultural life in general became "Indianized." But China soon came to her senses and began to rebel against Buddhism. Buddhism was persecuted, boycotted, and serious attempts were made to domesticate it. And, with the rise of Ch'an (Zen) Buddhism, an internal revolution was achieved by openly discarding the entire canon of Buddhist scripture of over 50 million words. So, in the end, China was able to achieve her own cultural survival and rebirth by a series of literary, philosophical and intellectual renaissances. So, although she was never able entirely to free herself from the 2,000 years of Buddhist Conversion and Indianization, China did succeed in working out her own cultural problems and continuing to build up a secular and essentially Chinese culture.

As early as the last years of the sixteenth century and the early decades of the seventeenth, a strange but highly advanced culture was knocking on the gates of the Chinese Empire. The first Jesuit missionaries to China were carefully selected and prepared for the first introduction of the European civilization and the Christian religion to the most civilized nation of the age outside of Europe. The first encounters were friendly and successful. In the course of time, those great missionaries were able to offer to the best minds of China, not only the best and latest achievements of European mathematical and astronomical science, but also the Christian religion as best exemplified in the saintly lives of those men.

The period of forceful confrontation and conflict between China and the West began about one hundred and fifty years ago. To this learned assembly, pre-eminently learned in modern history, I need not retell the story of China's tragic humiliations resulting from her ignorance, arrogance, and self-complacency. Nor do I need to recount the long tale of China's numerous failures in her clumsy and always too late efforts to bring about reforms in the various aspects of her national life. Nor do I have to tell the more recent story of China's serious endeavors, especially in the republican period, to critically study her own civilization and to propose reforms in the more basic aspects of her cultural tradition such as the language, literature, thought, and education. You and I have all been eye witnesses of such recent efforts and events, and most of the senior members of the Chinese delegation have been participants in those activities.

My task today is to call your attention to a few considerations directly or indirectly connected to our question as to the future of the Chinese tradition. Before we can speculate about its future, should we not first take an inventory of the present status of that tradition after 150 years of confrontation with the West? Should we not first make a general estimate of how much of the Chinese tradition has been definitely destroyed or dropped as a result of this contact with the West; how much of the Western culture has been definitely accepted by the Chinese people; and, lastly, how much is still left of the Chinese tradition? How much of the Chinese tradition has survived the great confrontation?

Many years ago, I said publicly that China had made truly earnest efforts to rid herself of many of the worst features of her cultural tradition: "In the brief space of a few decades, the Chinese people have abolished bodily torture in the courts, which must have been in practice for thousands of years; they have abolished foot-binding, which has existed over a thousand years; they have abolished the so-called 'eight-legged' balanced prose composition which had been required in all stages of civil service examinations throughout the last five hundred years. . . ." And we must remember that the Chinese people were the first non-European people to abolish the institution of hereditary monarchy which must have existed in China for more than five thousand years. The mere fact that "even the emperor must go" must have had tremendous psychological effect upon the vast majority of the people.

These and hundreds of other items of quick collapse or slow disintegration have been the natural casualties of this period of cultural impact and collision.

No tear needs be shed on these cultural casualties. Their abolition or disintegration should be considered as a part of China's emancipation from the shackles of her old and isolated civilization. For thousands of years, Chinese political thinkers could not solve the problem of how to check the unlimited power of the hereditary monarch in a huge unified empire. But a few decades of contact with the democratic countries of the West were enough to give the solution: "Get rid of the monarch and abolish the hereditary monarchy altogether." The same is true of many of the other voluntary abolitions. Eight centuries of Neo-Confucianist philosophy had failed to voice a protest against the inhumanity and barbarity of foot-binding, but a few missionaries with a fresh point of view were enough to awaken the moral sense of the Chinese people, and abolish foot-binding forever.

How much has China voluntarily accepted or adopted from the Western civilization? The inventory list will never be complete. For there must have been literally many thousands of items which have been voluntarily accepted by the Chinese people either because they never had them or their counterparts before, or because they were superior or more useful than their Chinese counterparts. Quinine, corn, peanuts, tobacco, the lenses for eyeglasses, and thousands of other things were accepted because the Chinese never had such things before and they wanted to have them. The mechanical clock was early accepted and in no time completely replaced the Chinese water-clock. That is the best example of one superior gadget replacing its inferior counterpart. From the mechanical clock to the airplane and the radio, thousands of products of the scientific and technological civilization of the West can be listed in our inventory. In the intellectual and artistic world, the inventory list will have to begin with Euclid and end with our contemporary scientists, musicians, and movie stars. The list will be endless.

Now the question: After all the discardings and erosions from the old civilization, and after the many thousands of voluntary adoptions from the modern Western civilization, how much is left of the Chinese tradition?

More than a quarter of a century ago, in 1933, I was speaking on the different types of cultural response in Japan and China. I pointed out that the modernization in Japan might be called the type of "centralized control," while China, because of the absence of a ruling class, was becoming modernized through a different kind of cultural response which might be described as "cultural change through long exposure and slow permeation." I went on to say:

> In this way practically all of our ideas and beliefs and institutions have been freely allowed to come under the slow contact, contagion, and influence of the Western civilization and undergo sometimes gradual modifications and sometimes fairly rapid and radical changes.... We have not concealed anything, nor have we dogmatically withheld anything from this contact and change....

Years later, I again spoke more or less in the same vein:

> All westernization in China has come as a result of gradual diffusion and permeation of ideas, usually initiating from a few individuals, gradually winning a following, and finally achieving significant changes when a sufficient number of people is convinced of their superior convenience or efficacy. From the footwear to the literary revolution, from the lipstick to the overthrow of the monarchy, all has been voluntary and in a broad sense 'reasoned.' Nothing in China is too sacred to be protected from this exposure and contact; and no man, nor any class, was powerful enough to protect any institution from the contagious and disintegrating influence of the invading culture.

What I was saying in those bygone days amounts to this: I had considered the numerous slow but voluntary changes as constituting a rather democratic and rather likable type of cultural change through long exposure and voluntary acceptance. I meant to imply that neither the voluntary discardings, nor the numerous acceptances, would tend to destroy the character and worth of the recipient civilization. On the contrary, the discarding of the undesirable elements should have the effect of a great liberation; and the new cultural elements accepted should only enrich and vitalize the older culture. I was never afraid that the recipient Chinese civilization might disintegrate and disappear after so much is thrown away and so much is taken in. I actually said:

> Slowly, quietly, but unmistakably, the Chinese Renaissance is becoming a reality. The product of this rebirth looks suspiciously occidental. But scratch its surface and you will find that the stuff of which it is made is essentially the Chinese bedrock which much weathering and corrosion only made stand out more clearly—the hu-

> manistic and rationalistic China resurrected by the touch of the scientific and democratic civilization of the new world.

This I said in 1933. Was I over-optimistic then? Have I been disproved by the events of the intervening decades?

And what of the future? What has become of the "Chinese bedrock—the humanistic and rationalistic China"? And what will become of it now that the whole of the Chinese mainland has been under the totalitarian control of the Chinese Communists for the last eleven years? And will "the humanistic and rationalistic China" be strong enough to survive the long years of "Iron Curtain" rule which permits no contact with, no contagion of, and certainly no "long exposure" to the poisonous influence of the Free World?

Prediction of the future is always hazardous. I have in recent years read over four million words of "purge literature" published in Communist China. Every piece of "purge literature" tells us what the Chinese Communist Party and Government are afraid of and what they are anxious to uproot and destroy. Judging from this vast amount of "purge literature," I believe I am justified to conclude that the men now in control of the Chinese mainland are still afraid of the spirit of freedom, the spirit of independent thinking, the courage to doubt, and the spirit and method of evidential thinking and evidential investigation. The writer Hu Feng was condemned because he and his followers had shown the spirit of freedom and of independent thinking and had dared to oppose Party control of literature and the arts. My friend and former colleague Liang Shu-ming had to be purged because he had exemplified the dangerous spirit of doubt. And "the ghost of Hu Shih" has deserved three million words of condemnation because Hu Shih had been largely responsible for the popularization of the traditional classical scholar's spirit and method of evidential investigation, and because Hu Shih had the unpardonable audacity to describe that spirit and method as the essence of the method of science!

Judging from these purge documents, I am inclined to believe that what I had glorified as "the humanistic and rationalistic China" still survives on the Chinese mainland, and that the same spirit of courageous doubt and independent thinking and questioning which played important roles in the Chinese revolts against the great medieval religions and in their final overthrow may yet live long and spread even under the most impossible conditions of totalitarian control and suppression. In short, I believe the tradition of "the humanistic and rationalistic China" has not been destroyed and in all probability cannot be destroyed.

PHILOSOPHY, UNDERSTANDING, AND COOPERATION

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I am going to say very little that is new to you—how could I possibly say anything really important after that inspiring address we have just heard from Dr. Hu—but I want to discuss the significance of philosophy as related to understanding and cooperation, and to acquaint you with a successful attempt at intellectual cooperation which accomplished much in producing understanding and cooperation among representatives of the major cultures and traditions of Asia and the West.

I.

My thesis is that significant cooperation is possible only on the basis of mutual philosophical understanding, and on such philosophical understanding only if it reveals philosophical compatibility, or even real friendship, in terms of fundamental ideas and ideals.

How can we achieve genuine understanding? There are many roads to understanding, and I want to emphasize the point that all of these roads are valuable and necessary insofar as they help us to understand the fundamental beliefs and attitudes of the people involved. Three main roads to understanding are widely recognized: the sociological, that is, an observation of and knowledge about the ways a given people act in their daily living; the religious, by which the hope is to understand each other in terms of basic common denominators; and the philosophical.

The sociological approach concerns itself primarily with what people do without being sufficiently concerned about the basic ideas and motives that underlie action. There is also the almost inevitable provincial prejudice which makes it difficult to understand another culture in practice. And there is the possibility that the sociologist may be tempted to pay undue attention to exceptional practices and thus misunderstand, rather than understand, the culture in question.

The religious approach is unsatisfactory because, except for a few high-minded religious leaders and scholars, the religious attitude is so closely related to emotion, prejudice, and authority, and is so involved in the unintelligibility of the unique factors of other religions that understanding in any significant sense is extremely unlikely.

The philosophical approach—if that is the proper term; in fact, the name is not important—to understanding holds the greatest promise of success. This is true primarily because the philosophy of a people consists of its basic beliefs, its fundamental ideas and ideals, and why it believes as it does. It would seem, then, that the philosophical approach, which deliberately attempts to get at the basic "mind" of the people, can best reach understanding. We, as educators, must believe that a man is what he thinks, even if some of his actions do not seem to confirm this. Thus, a knowledge of the basic philosophy involved is the only sufficient source of real understanding; and the point may be noted that this is especially true in the case of the Asian peoples because of the unusually close relationship between philosophy and life in all of the major Asian traditions.

Now within the field of philosophy, precisely how can we go about achieving philosophical understanding? There are two major procedures. The somewhat long-established pattern consists in determining and citing the over-all basic ideas, ideals, methods, and attitudes of a given people and then applying these concepts to explain practical situations and activities. Although I have followed this procedure for a very long time, I feel that it is open to serious question on several counts: precise categorization is next to impossible and over-simplification almost inevitable; every culture is subject to significant change in the course of history, thus making it next to impossible to make any precise formulation of what the "mind" of the people is. It must be said, however, that for all practical purposes, if one conscientiously avoids the danger of over-simplification, this method has real merit and probably some validity.

Philosophy, however, is not the only factor in determining human action. Unfortunately, force, or fear of force, can temporarily destroy a philosophy and violate basic convictions, as for example in China at the present time. However, this realistic but deadly fact surely cannot make us give up our conviction that the mind of man and his fundamental ideas and ideals will survive. This was expressed by Dr. Hu a few moments ago when he said he was convinced that the "Chinese bedrock" would eventually win out.

II.

The other approach is the one which was used at the Third East-West Philosophers' Conference, held at the University of Hawaii last summer. This Conference, to which I referred earlier, produced a remarkable degree of mutual understanding by working its way through and out of gross misunderstandings by the process of open-minded intellectual cooperation.

In this approach there is a direct frontal attack on the areas of greatest misunderstanding, of greatest differences, of even apparent conflicts of ideas and ideals—specifically in the areas of social thought and action. The process involves an attempt to get at the underlying concepts and values which are being expressed or sought in the actions in question and which explain what these actions mean to the people and why they act as they do—and this constitutes understanding.

In applying this method of approach the conference examined the following four areas: (1) Science, Reason, Intellectualism; (2) Religion, Spirituality, and Spiritual Values; (3) Ethics and Social Practices; and (4) Legal, Political, and Economic Philosophy.

1. *Science, Reason, Intellectualism*

The usual interpretation of the relationship between East and West in this particular area consists fundamentally in setting up an opposition between what has been called the "intuitive" East and the scientific, or rationalistic, West. Emphasis is frequently placed upon an Oriental tendency toward compromise, mediation, and an attitude of moderation or the middle path. All this, it is said, is completely different from the Western attitude, which depends completely and absolutely upon science, reason, and logic, where compromise and mediation have no place and are wrong.

In answer to this, several facts may be pointed out which indicate the falsity and over-simplification of the interpretation presented. For one thing, science, and the scientific spirit, is not alien to Asia. True, science in Asia has not developed along the same lines as in the West, nor is it interested primarily in knowledge about external Nature. However, science in India constitutes an extremely important part of the background of the Indian tradition, where it was applied primarily in the fields of psychology, religion, architecture, medicine, and biology, along with significant achievements and discoveries in mathematics. As explained by Dr. Hu, the scientific method has always been an intrinsic part of the Chinese tradition. Here, again, the scientific attitude was applied to areas other than external Nature, such as textual criticism, phonology, history, etc. Joseph Needham's seven-volume work on science in Chinese civilization would seem to be fairly good evidence for the presence and significance of science and scientific thinking in almost every aspect of Chinese thought and civilization. With reference to Asia as a whole, it was also pointed out that reason is used almost universally in philosophy, and that intuition as a basic means of knowledge is accepted only as the ultimate method of obtaining significant knowledge about the Spiritual "within" or the Absolute "above."

On the side of the West, it was noted that the West is not 100 per cent scientific or rationalistic. True, Greek science and modern science are intrinsic parts of the Western mind, but so also is Judaism, Christianity, and all of the many idealisms—and even the irrationalisms—that have developed in the Western tradition without subservience to purely scientific procedure. Strict adherence to rationalism or intellectualism in the sense implied is seldom found even within philosophy, where reasonableness rather than rigid intellectualism or scientific procedure seems to be the requirement of sound thinking. There is also the point that a considerable number of thinkers in the Western tradition in philosophy, in science, and in other areas of creative thought and action, have used and recognized the significance of intuition. In other words, neither the East nor the West is adequately explained in the usual interpretation, and consequently the alleged conflict between the East and the West seems to be unsound.

2. *Religion, Spirituality, Spiritual Values*

In the usual interpretation, the West is characterized by religion and spirituality which involve a personal god, the immortality of the soul, the requirement of almost human values in the case of God, and the creation of the world by a personal god. This is sharply contrasted with religion and spirituality in India, which is said to be an absolutism and in which the ultimate reality is one, without any quality, and the individual is ultimately insignificant and unreal and will either be absorbed in an Absolute (in Hinduism) or "annihilated" (in Buddhism). This general picture, in some Western interpretations, characterizes the East as a whole. To continue, the usual interpretation is that there is no religion and no significant spirituality in China, and Shinto, the indigenous religion of Japan, is either a religion of superstition or merely a political tool. Another aspect of the usual interpretation — this coming primarily from Asia — is the spirituality of the East as opposed to the materialism of the West.

The facts in the case are many and complex and cannot be presented here in full. Suffice it to say that there are vast differences in specific formulations of religion and of spiritual points of view in Asia and in the West, but that there is deep concern for the spiritual in both East and West. Concepts of what constitutes the essence of spirituality are very different indeed in detail; but concern for the spiritual as that which lifts man above the physical, the self, etc., and usually as that which is the ultimate reality, is universal among the major traditions considered.

Two points of extreme importance have to do with the Indian attitudes on spirituality: (1) the very great majority of Indians, and of Indian philosophical and religious systems, follow theism rather than absolutism; and (2) they believe in ultimate pluralism rather than the absolute monism which is so often said to be essential to all Indian religion.

All the traditions under consideration also respect and consider as the highest of human values the traditional spiritual values, the true, the good, and the beautiful, although here, too, emphases differ.

The Oriental tendency to ignore or reject the spirituality of the West is also found to be unsound because of the many-sided spiritual life and thought of Western civilization—in its Judeo-Christian religious tradition, in the spiritual nature of reason as understood by the West, in its search for truth and justice, and in its spiritual idealistic philosophies from Plato on.

In sum, the area of spirituality—though not of religion—provides a basic common principle, a bridge of understanding, not a chasm of opposition, despite seemingly conflicting, and often misinterpreted, forms and practices and technical doctrines.

3. *Ethics and Social Practices*

a. In the field of ethics, omitting social practices for the moment, the usual interpretation is that the East and the West stand at opposite poles. In India, it is said, ethics is insignificant, being transcended in the ultimate reality and in the ultimate goal of man; there are no universally and rigidly applicable principles of ethics. In Asia, it is said, because of the priority of the family system and because of the tendency to compromise and mediate, ethical problems become completely flexible and tend to lose significance.

The facts in the case are quite different, although no one can deny the ultimate transcendence of ethics in the absolutist form of Indian philosophy or the significance of the family system and of personal human values as distinct from rigid, almost mechanical, ethical principles in the several areas of Asia. There are many different bases of ethics in Asia, as in the West, but moral integrity and a life of moral practice are basic and demanded in all of the cultural traditions being considered. In much of Asian philosophy, moral purity is a prerequisite for the very study of philosophy, for the search for truth, and for salvation. Even in the most extreme of Oriental systems—within the complex of Hinduism and Buddhism—ethics is mandatory in all aspects of life.

Looking now to the West, there is no theory of ethics which characterizes the West. The scientific, rationalistic, universal, and rigid system of ethical judgment is not practically applicable nor is it accepted theory of ethics even in philosophy. The "Formalism" of this legalistic type of ethics has long been rejected for teleological liberalism. Also, ethical problems are flexible in the West, as they are at times in the East. Consideration of the human element in ethical judgments is as universal in the West as in the East.

Without any elaboration it should also be noted that all of the major traditions of Asia agree with the West in terms of specific moral virtues which are considered important; although Japan's emphasis upon duty and loyalty would seem to be to the contrary were it not for the fact that in their extreme forms they are not characteristic of the Japanese tradition, where Buddhism has played such an important part. Truthfulness, honesty, non-injury or non-killing, the avoidance of lust, and non-attachment to wordly or material things are characteristic of both East and West.

b. In the area of social practices generally, the usual interpretation consists of sets of different and mutually objectionable practices and institutions which, on the surface, are not only unintelligible to outsiders, but also basic causes of misunderstanding and even opposition. For example, how can any outsider really understand India with its caste system, its untouchables, its abject poverty, ignorance, and disease? What are other people to think about Americans — how understand them — with their seemingly all-inclusive materialism, their mania for pleasure and for gadgets, their degrading movies, their Negro problem?

Left alone, these facts certainly constitute a basis for misunderstanding, but when these social practices are subjected to what might be called philosophical examination and explanation, the greater part of the basis for misunderstanding and opposition is destroyed. We learn, for example, that in understanding and evaluating we must compare our ideals with their ideals and our practices with their practices, not our ideals with their practices. We learn the necessity of accepting their customs and practices as good in their eyes and for reasons which they accept, or as bad but as yet unchanged, or as unavoidable because of circumstances beyond their control, or as not really so bad as others might think in the light of their meager knowledge. Both Indians and Americans would reject the descriptions given of their countries by contending that this is not the real India nor the real America. The tragedy in all such situations is that outsiders, not understanding the values and reasons involved, often interpret these deviations from ideals as constituting or reflecting the basic philosophy of the people.

In line with this tendency one often hears the word "underdeveloped", or even "backward", as descriptive of entire civilizations, just as the people so castigated interpret the American mind as materialistic because of practices which no American would accept as the true American way of life.

Disregarding for the moment the obviously objectionable features of the varying cultures involved, it may be interesting to note that the family system, even in its extreme forms, and filial piety — often cited as a basis of opposition, criticism, and unintelligibility—are also well recognized bulwarks of Western civilization.

4. *Legal, Political, and Economic Thought*

a. In the legal area, the usual interpretation is similar to that in science and in ethics. In effect, this view is that, since the Western world is based fundamentally, even perhaps exclusively, upon science, reason, and a strictly intellectual approach to all matters of importance, the Western attitude (which originated fundamentally with the Roman Stoics, who based their views upon Greek science) is one of rigorousness and universality resulting in strict laws which apply to all men alike, without any tendency to compromise or deviate in any way because of personal reasons. In other words, strict rule by law as opposed to rule by man. Flexibility is clearly out of the question. Instead, all men are equal before the law, which is to be enforced rigorously in all cases. This interpretation sets the West against the East. As for the East, the general impression seems to be that law is fundamentally subordinate to family, that there is rule by man rather than rule by law, that flexibility is the norm rather than the exception, and that compromise, mediation, and non-dependence upon law are the essential principles in the legal outlook and practice throughout Asia.

The fact seems to be, however, that this interpretation is at most a half truth and is guilty of substantial oversimplification on both sides and an exaggeration of tendencies or emphases rather than strictly accurate description. The implication that there is no substantial, rigorous law with universal application in Asia is decidedly unsound with reference to both India and China; for in both countries there are strict legal systems as well as strictly applied common law or custom, all of which apply rigorously and universally. China's penal code, or codes, over the centuries must be mentioned in this connection, because no leniency or family consideration is involved here—the law is the law, except where, as in all cultures, deviations take place. True, there is mediation and there is compromise and there is an effort to avoid legal entanglements. But all of these practices are characteristic of both East and West, although in China and India it is more openly admitted that human values sometimes must take priority over strictly abstract and rational rules in law as in ethics.

It must be repeated here that the West is not 100 per cent scientific or rationalistic or intellectualistic in law any more than it is in ethics or elsewhere in its many-sided culture and thought, although the tendency is in that direction.

b. In the political sphere, the usual interpretation follows the same pattern as in the ethical and legal sphere. The East usually "muddles through" rather than following strict and established political norms and procedures; the East is fundamentally monistic in politics, giving little or no status to individual human life, and thus, in sharp contrast to the West, there is no democracy in Asia.

The facts in the case would seem to be that, although the forms of government in Asia vary greatly and are in contrast to forms of government in the West, especially American democracy, and although democracy as we know it has never been the precise form of government in any of the major Asian countries, nevertheless, the fundamental purposes and spirit of democracy are uppermost in the political mind and have been achieved as far as possible in different forms of social and political organization in the several Asian areas. In all the countries of Asia—possibly Japan is an exception, but its scholarly authorities do not admit so—there is fundamental philosophical recognition of the value and dignity of the individual and of the respect due to him in that status. In fact, in Hindu India—and everywhere in Asia where Buddhism has reached—the individual is fundamentally a spiritual being and must be respected as such. In China, though the individual is not considered of divine origin or nature, his moral character stands for his human personality and his spiritual nature. While democracy has not existed in Asia in the American form, it is generally admitted by experts that the human values of democracy are fostered, preserved, and prevail as far as possible in all of the countries of Asia.

Some thinkers in Asia are strong advocates of democracy but are critical of the particular form which democracy has taken in America, with its excessive individualism and devotion to freedom, without due concern for responsibility or for those aspects of life and culture—such as the family and the social order—which are not purely individualistic. We of the West should not misunderstand the human and democratic nature of Asian cultures and political orders simply because they do not conform in every detail to our own particular version of democracy. How can any critic, for example, fail to recognize democracy in a culture like that of Confucian China, which stresses the dignity and worth of the individual, the perfectibility of mankind, equal rights to education for everyone, an aristocracy of virtue and ability rather than of birth or wealth, government by the learned and virtuous, the happiness and total welfare of the people as the proper goals of government, and the right to rule as dependent not on inheritance but on popular confidence. (See Creel, *Confucius, the Man and the Myth.*)

The question of Japan on this matter is open to discussion. Japan has never had democracy, nor does its philosophy provide a basis for democracy, except for that element of its philosophy which is Buddhistic and for the fact that the welfare of the people is the primary purpose of government.

Another very important point is that in *all* of the countries of Asia, the government exists exclusively for the welfare of the people. Governments in Asia are not "of" or "by" the people, but they are "for the people" and may even be considered based upon the "consent of the governed" since the government is the servant of the people and in structure is thought of as a larger family which serves all the people.

c. In economic matters the usual interpretation is that the East, as completely contrasted with the West, is concerned exclusively with things of the spirit, that it either pays no attention to economic or material matters or actually rejects their significance in life.

The facts are, however, that material values are of definite and real significance in all of the major cultures and philosophical patterns of Asia as well as in the West. For example, the "householders," or breadwinners, are recognized in the *Laws of Manu* as the most important group of all because all the other "orders" depend upon them for livelihood. In all the traditions under consideration, economic values are distinctly lower than spiritual values, which are supreme. There is difference in emphasis on the relative importance of material values and on the effort to achieve such values. But even here the difference might not be so great if East and West possessed equal opportunities to gain and enjoy economic values.

III.

The sum and substance of the philosophical examination of these various areas of social thought and action in East and West reveals a very significant basic compatibility and many fundamentally common ideas and ideals. This philosophical friendship thus provides a sound and promising basis for significant cooperation between the peoples of Asia and America. Not only in these several specific areas of social and cultural activity, but also in over-all attitudes, the peoples of Asia and of America have so much in common that opposition and misunderstanding should be out of the question, and cooperation should be inevitable. We all believe in morality, in spiritual values, in the rule of right rather than force, and in the dignity of the individual; certainly this is enough to justify significant cooperation and mutual understanding.

IV.

As a postscript may I mention that, while philosophy makes a great contribution to cooperation, intellectual cooperation makes an indispensable contribution to philosophy. Philosophy's stake in intellectual cooperation is great. Philosophy is interested in the total truth about man and reality. Only by having at its disposal all the knowledge, all the insights, and all the wisdom of mankind as a whole in all the major thought traditions of the world can philosophy acquire the total perspective and the total data which are required to enable it to reach as close as possible to truth and wisdom which are worthy of the name, and which are, therefore, adequate for man—East and West.

SOME REMARKS ON THE HUMANITIES

by MAO TZU-SHUI
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The importance of the humanities as educational subjects is recognized today by the educators of all civilized countries. In the well-known Harvard Report on *General Education in a Free Society* (1945), is it proposed that all undergraduates at Harvard College should take a full course in the humanities, in the social sciences, and in either the physical or biological sciences in order that every student can be introduced to the major problems and determining forces of modern civilization.

Nevertheless, there has recently been a tendency to put the natural sciences over all other subjects. In some countries science students are freed from the military service and are given more chances for scholarships. If we consider only the problems with which our society is faced today, we may think that the humanities are even more important than the natural sciences.

I am well aware of the benefits that mankind has derived from the natural sciences. And I am certain that they will always do good to mankind if they are wisely directed. But let me quote a warning from Bertrand Russell's *The Scientific Outlook*:

> When it takes out of life the moments to which life owes its value, science will not deserve admiration, however cleverly and however elaborately it may lead men along the road to despair. The sphere of values lies outside science, except in so far as science consists in the pursuit of knowledge. Science as the pursuit of power must not obtrude upon the sphere of values, and scientific technique, if it is to enrich human life, must not outweigh the ends which it should serve.

I shall now consider the main subjects of the group "humanities" separately. I shall leave out the fine arts and music, for I am not qualified to say anything about them.

In ancient times, both the Six Arts in China and the Seven Liberal Arts in the West included language as one of their ingredients. Nowadays, every country regards its language as the very rudiment for educating its people.

Since the last years of the Manchu Dynasty, China has had a new curriculum for educating young people, and besides Chinese, the most important language is English. At present, if a student passes the entrance examination of a university, he must have studied English for six years. In the ordinary course of events, he must be able to understand the English of the textbooks. But experience shows it is not always the case. Most students in the university read English with difficulty. Their English studies in the schools were very defective. The cause is that we lack good English teachers at the schools. Only recently, through the cooperation between the Asia Foundation and the Normal University of Taiwan, there seems to be some improvement in the methods for training English teachers. I hope that in a few years the situation will become much better.

In America things are different. During World War II, several universities began to establish Chinese language courses. Most of these courses have proved very successful. I met some American students who had attended such courses before coming to China. It is quite remarkable that in so short a time they could have learned to speak a foreign language with some fluency. Much of the success is due to a new method of teaching, such as the Intensive Course of Chinese at Yale University.

For the sake of intellectual communication, it is of fundamental importance that different peoples can speak the same language. Thus an ideal thing for intellectual communication is to have a world language such as Esperanto of Ido. But from a century's experience we can see that an artificial language will never prevail. The most reasonable way to a world language is to adopt a living language. I am of the opinion that for this purpose there is no better language than English.

About forty years ago a new style of written Chinese (i.e., *pai hua wen*) began to prevail. It has had a great effect on literature and Chinese national education. But owing to the fact that before that time almost all Chinese literary works were written in *wen yen wen* it is necessary that there must always be scholars who devote themselves to the study of Chinese literature of the past in its original form. Of course the number of such scholars can not be large. I hope among the few there will always be some foreigners. In language study, as well as in the other humanistic studies, it is always beneficial to the native scholars that there are some foreign colleagues. Foreigners always view things from a standpoint different from that of the native scholars. For instance, in the study of Chinese grammar we are fortunate enough to have had such scholars as Von Gablentz in the last century and Karlgren in the present century.

Literature has had an important place since antiquity. 'Shih' (i.e., *Book of Odes*) was the only book which Confucius often recommended to his pupils for study.

As I mentioned above, almost all Chinese literary works were written in *wen yen wen*. They all are difficult to read. For educational use, the more important classics should be translated into *pai hua wen* for Chinese students, or into English for Western scholars. A good translation will not diminish much of the value of the original work.

For those foreign scholars who will not devote themselves to the Chinese language as specialists, it is not necessary to study the Chinese literature of the past in its original form. Good translations of the more important classics will be sufficient for the ordinary foreign scholars, whose aim in studying literature is to trace the general trend of Chinese thought and culture. Certainly, good translations are not easy to get; but if a translation is made by a competent and conscientious scholar, it must have some merit and will be useful for the students.

For the literature of a nation, a foreign scholar is sometimes a better interpreter than the native scholar. So in translating Chinese literature into a European language, the foreign scholar has also his advantages. Chavannes's "Sema-Ts'ien" is evidence of this statement.

Owing to the characteristics of the old literary Chinese, it is sometimes impossible to translate an old Chinese text into a modern European language. Let me take *Wen Hsuan* as an example. To my mind not more than two-thirds of this famous anthology can be adequately translated into a modern European language with some degree of readability. For this reason, although there have been some critics who found faults with von Zach's translation, I still have respect for the translator.

While Western scholars need good translations of the more important Chinese classics, we Chinese are in need of good translations of all the Western classics in the humanities. In my opinion a good translator is as important as a good author in the task of creation. We ought to have many good translators. I think the cooperation of Chinese and Western scholars will be of great help.

In this connection, let me quote some passages from the *Journals of Matthew Ricci: 1583-1610*. They concern the first Chinese translation of Euclid and shed light upon the intellectual communication between the Western and Chinese scholars.

> It was during this time (1605) that the Fathers undertook a work which at first sight might not seem to be wholly in keeping with the purpose of their mission, but once put into practice proved to be quite beneficial. Doctor Ciu Paul had this one idea in mind: since volumes on faith and morals had already been printed, they should now print something on European sciences, as an introduction to further study, in which novelty should vie with proof. And so, this was done, but nothing pleased the Chinese as much as the volume on the *Elements* of Euclid. This perhaps was due to the fact that no people esteem mathematics as highly as the Chinese, despite their method of teaching, in which they propose all kinds of propositions but without demonstrations. The result of such a system is that anyone is free to exercise his wisest imagination relative to mathematics without offering a definite proof of anything. In Euclid, on the contrary, they recognized something different, namely, propositions presented in order and so definitely proven that even the most obstinate could not deny them.
>
> A friend of Paul's who had obtained to the licentiate at the same time that he had, but who could not legally aspire to a higher grade, was assigned to collaborate with Father Ricci in preparing this Chinese edition of Euclid. He was taking daily lessons in Chinese, and lived at the Mission House to be in closer touch with Father for continued conversation in Chinese. This combination of editors was not so fortunate. Some time previous, Father Ricci had told Paul that no one, unless he were a scholar of exceptional Genius, could undertake this task and see it through to the end proposed. Paul, then, set himself to work. By labor and study, and by listening to Father Matthew for long hours, day after day, Ciu Paul made such progress that he wrote out in Fine Chinese characters everything he had learned, and within the space of a year, they published (1607) a very presentable edition of the first six books of the *Elements* in clear and elegant Chinese style. Here too, it may be noted that the Chinese language is in no wise deficient in idiom or in vocabulary for the proper expression of all of our scientific terminology. Ciu Paul wanted to do the rest of Euclid, but Father Ricci thought they had done enough to suit their purpose. Paul then published the six divisions in one volume, for which he wrote two preludes. The first one, written in the name of Father Ricci, dealt with the ancient author of the original work, giving credit to Father Clavius, Ricci's former teacher, for his commentary on the original, and whose

> explanations and principal annotations, Ricci had put into Chinese. This preface also contained an explanation of the application of the various problems and theorems, together with other mathematical data. In the second prelude Ciu Paul wrote a really excellent encomium of European science and letters. This book was greatly admired by the Chinese, and it had considerable effect upon the rearrangement of their calendar. For a better understanding of it, many came to Father Ricci to enroll as his pupils, and many also to Ciu Paul, and with a teacher to direct them, they took to European scientific methods as readily as the Europeans themselves, showing a certain keeness of mind for the more subtle demonstrations.

In recognizing the Chinese people as being qualified for scientific research, Matthew Ricci was prior to Joseph Needham by more than three hundred years. It is delightful to see that only a truly cultivated man can make an adequate estimation of a culture. It is so with Matthew Ricci, it is so with John Dewey, it is so with Richard Wilhelm, it is so with Bertrand Russell, and it is so with many other truly cultivated people.

Of course, a Western scholar may also profit by having a Chinese scholar as adviser when he sets to translating a Chinese classic into a Western language.

Of the humanities, history occupies a special position. Not because it is intrinsically superior to the other members of the humanities, but because the knowledge of history is fundamental in understanding all the other human sciences. To illustrate this point I can not do better than to quote Trevelyan:

> The older I get and the more I observe the tendencies and conditions of our latter day, the more certain I become that history must be the basis of humane (that is non-scientific) education in the future. Without some knowledge of history other doors will remain locked. For example, the reading of poetry and prose literature, other than current books, must rest on some knowledge of the times past when the older books were written. Some understanding of the social and political scene of Chaucer's, Shakespeare's, Milton's, Swift's world, of the world of Boswell, of Wordsworth and Shelley and Byron, of Dickens and of Trollope, of Carlyle and Ruskin is necessary in order to fully appreciate the works in question, or even in some cases to understand what they are about. Music needs no such historic introduction to be fully appreciated, for it is not allusive, or only slightly. But literature is allusive, each book rooted in the soil of the time when it was written. Unless, our great English literature is not to become a sealed book to the English people (as indeed I fear it is to many) our countrymen must know something of times past.

Indeed historical knowledge is necessary not only to the full understanding of literature but also to the full understanding of philosophy. Can we understand fully what Confucius said if we are ignorant of what was going on in Confucius' time? Can we fully appreciate the significance of the philosophy of Kant if we do not know the history, both political and intellectual, of the eighteenth century?

Besides, history seems to be the only guide through this confused and difficult world. There is a passage in H. A. L. Fisher's preface to his *History of Europe*:

> Book III describes The Liberal Experiment, using the adjective Liberal in no narrow party sense, but as denoting the system of civil, political and religious Freedom now firmly established in Britain and the Dominions as well as among the French,

> the Dutch, the Scandinavian and American people. And if I speak of Liberty in this wider sense as experimental, it is not because I wish to disparage freedom (for I would as soon disparage Virtue herself), but merely to indicate that after gaining ground through the nineteenth century, the tides of liberty have now suddenly receded over wide tracts of Europe. Yet how can the spread of servitude, by whatever benefits it may have been accomplished, be a matter for congratulation?

Fisher wrote his preface in 1936. Now things are even worse. During the last 25 years, World War II was fought, the Fascists and the Nazi were knocked out. But the miseries which communism has brought to the world become worse and worse. We are in such a situation "that two alternative and contrasted destinies await us." Either we must surrender to the despotism of communism or we stand against it. There is no midway left. Can we surrender before the power of communism? Can we let the valuable legacy of mankind, i.e., liberty and democracy, be destroyed without striving to save it from ruin? I can only answer both questions in the negative. But what can we educators do? To my mind, we can not do better than to let people—citizens as well as statesmen—know more of history and philosophy. First, history; then philosophy: for facts are easier to understand than abstract ideas.

In the opinion of some scholars, the knowledge of history is indispensable to the higher direction of society. History gives us breadth of outlook, teaches us a rational way of thinking about current affairs and their relation to the civilization of mankind. These things can certainly strengthen our belief in democracy. There are people who like to suppose that nations devoted to a dogmatic philosophy will have better coherence and therefore greater strength in the time of war than nations devoted to democratic principles. But history has not affirmed such a supposition. Moreover, the teachings of history benefit not only the people of the democratic states, but also those of the Communist side. If the politicians of the Communistic states have understood what history has taught them, they may give up their fanatic folly and adapt themselves to the doctrine of democracy. Maybe I am too optimistic, but you can not say that there is no such possibility.

William James once said:

> Democracy is a kind of religion, and we are bound not to admit its failure. Faith and utopias are the noblest exercises of human reason, and no one with a spark of reason in him will set down fatalistically before the croaker's picture. The best of us are filled with the contrary vision of a democracy stumbling through every error till its institutions glow with justice and its costumes shine with beauty. Our better men shall show us the way and we shall follow them; so we are brought round again to the mission of the higher education in helping us to know the better kind of man whenever we see him.

It seems that, of the subjects in college education, James regarded history as the best qualified to help people to know the better kinds of men when they see them. He said elsewhere, "What our colleges should teach is biographical history, that not of politics merely, but of anything and everything so far as human efforts and conquests are factors that have played their part." In my opinion philosophy is as important a subject as history in teaching people to know the better kinds of men. But I shall not now dwell on this point. What I would like to bring to your notice is James' ideal of college education: "To help you to know a good man when you see him." To know good men from bad men is important not only to citizens in a democratic country, but also to its statesmen.

The importance of biographical literature to the education and culture of a nation is too evident to be discussed here. *Confucian Analects* is a kind of biography; so are the Gospels. The educational value of Plutarch's *Lives of the Noble Grecians and Romans* is well known. In modern times, from the educator's point of view, we may mention Franklin's and John Stuart Mill's autobiographies as school or college classics. Many other biographies and autobiographies may enter into this class. They have inspired numberless readers with virtue and courage; they have aroused numberless people to great action.

A good historical education makes man capable of understanding other people and other nations. It provides one with a sure basis for political judgment. If we want national coherence and permanent peace in the world, then a good historical education will be the most important tool.

A good history book, whether it be a handbook, a textbook, or a popular book, must be free from national and racial bias. The author should have noble intentions and broad vision. He should not distort any historical fact.

The history of a country may with advantage be written by a foreign scholar, as in the case of the criticism of literature. The foreign scholar often sees the historical facts of a country from a standpoint which the native historian does not take. The history by a native scholar and that by a foreign scholar may sometimes complement each other. The few histories of China by foreign scholars of which I have some knowledge have each presented some interesting interpretations that a native scholar likes to know.

That the historical documents should, within the bounds of possibilities, be always open to competent scholars, both native and foreign, is a matter of course. A historian who is relating international affairs and has had the chance to examine the documents of both sides will do his job better than he who has not had such a chance.

I have several times mentioned the importance of philosophy as an educational subject in a confused world such as the present. I shall now briefly state my opinion about philosophy as a subject of education. As I am no professional philosopher, I think I may easily be forgiven for using the word "philosophy" in its popular sense.

First, philosophy teaches people the uncertainty of knowledge. If people have taken some good lessons in philosophy, they will become aware that they are liable to be mistaken and that they should always take this possibility into consideration when they are dealing with other people whose opinions are different from their own. We may regard such awareness as the foundation stone of democracy. Democracy based on this awareness is virtue itself.

Second, philosophy teaches people to know good and beautiful things from the evil and the ugly. Most of us are common people. We do not know what is good and what is beautiful simply because we have not seen and heard the good and the beautiful. The transition from barbarism to civilization must have been initiated by the great thinkers, moral teachers as well as natural philosophers. "Our better men shall show us the way, and we shall follow them." Knowledge of philosophy may make us regard hatred, cruelty, intolerance, indifference to human misery as evil; and love, kindness, tolerance, forgiveness, and truth as good. (I use Susan Stebbing's categories.)

In the *Confucian Analects* it was recorded: "There were four things from which the Master was entirely free. He had no foregone conclusions, no arbitrary predeterminations, no obstinancy, and no egoism." (Legge's translation.) Indeed, all wise men must have this kind of impersonal outlook, and only men who have such an outlook deserve the epithet "wise". It is this wisdom which philosophy is specially fit to promote! It is the wisdom which we should do our best to help our people to possess!

THE PLACE OF THE SOCIAL SCIENCES

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I.

These comments are addressed to two audiences in one, the social scientists and the non-social science specialists. So far as the professional social scientists are concerned, the aim is to provide a sketch of the common tradition which we share and which provides the predispositions in terms of which we approach the concrete questions to be considered in detail at this Conference. The aim is also to participate in the process of mutual communication with specialists in every field, and to further the growth of more effective working relations during future years.

II.

The contemporary position and future prospects of the social sciences can be best understood in historical perspective and with reference to the place of research in the University system. The universities and private scholars of Europe during the nineteenth century were the creative centers of origin and diffusion of theory and method as the social sciences became differentiated from the mother matrix of philosophy. The principal nations involved were Great Britain, France, Germany, and Austria.

Toward the latter years of the century the U.S.A. began to achieve independent centers of creativity. We usually connect this with the founding of new universities, notably Johns Hopkins University at Baltimore, the University of Chicago, and Stanford. The Faculty of Political Science at Columbia University was a landmark in this evolution which greatly accelerated the social sciences at the older institutions, notably Harvard and Yale.

The developments of the twentieth century are all too evident. With the attrition of France and the eclipse of intellectual life under Naziism, the United States was left as the chief reservoir of capability and concern where research and publication could go forward with minimum apprehensiveness for personal freedom. The American periphery to the nuclear centers of European civiiization became the new creative focus of scientific development.

III.

It may be instructive to examine some factors that affected the speed and direction of growth in the U.S.A. First of all, distinctive modifications of university structure favored the phenomenal growth of economics, political science, sociology, anthropology, social psychology, and other social disciplines in this country. In European universities the social scientists had enjoyed the uneasy status of second class citizens divided between faculties of law and philosophy.

Various circumstances raised the social sciences to parity with the older branches of knowledge. First of all was the overwhelmingly professional character of American law schools and the adoption of methods of instruction that seemed to leave no place for neighboring fields of learning. Law schools felt challenged to prepare their students to compete in state bar examinations for admission to practice, and these examinations asked detailed questions about Federal and local high court decisions and opinions. The reform in legal instruction at Harvard had introduced the "case method" which consisted in Socratic dialectic between the professor and students who had been assigned to read decisions and opinions of the principal courts in this country and England. There was no place for historic depth or for the examination of socio-psychological causes and consequences, or, for that matter, for systematic exposition of jurisprudential principles. The system aimed at facility in oral and written argument and "logic". Under these circumstances the law schools were wholly uninterested in providing accommodations for the social sciences.

A related factor was the growth of departmentalization beneath the umbrellas provided by faculties of philosophy. The aim of every self-respecting specialty was to set up its own department, to prescribe requirements for advanced degrees, and to penetrate the curricular offerings at the undergraduate level as a means of recruiting graduate students and of enlarging the market for teachers having Ph.D.'s.

In the campaign for a place in the academic sun and for appropriations, students, and facilities, the social sciences were both aided and handicapped by the American environment. For one thing the revulsion against the classics (rechristened the Humanities at a later phase of the academic struggle) was in full swing. American business men, who contributed to private colleges and universities, and American legislators, who voted tax monies for the support of state universities, had long cherished doubts about the "practicality" of many traditional subjects. They could see that political economy had something to say because economists were often able to provide guidance on questions of fiscal and monetary policy and the tariff. Political scientists could demonstrate their usefulness, especially at the level of state and local government where older forms of governmental organization fostered corruption and higher taxes. The humanitarian and reformist zeal of many Americans was expressed by academic sociologists who spoke of poverty and slums and of the possibility of sounder family life. There was public concern about the impoverishment of rural life as a result of the attractiveness of cities. People were also worried about the dangers to American institutions from the "newer immigration" originating in central and southeastern Europe.

The danger to the social sciences came from social shock; shock, that is, at the confrontation of social images of belief and practice with factual data that cast doubt upon the realism of the images. It was often shocking to learn from social scientists of the abundance and variety of the solutions that have been found in human culture for religious, family, sexual and other matters. Social scientists called attention to social and welfare programs, and to management policies relating to organized labor which were current in older industrial societies. Many outraged business men and clergymen attacked "socialists" and "anarchists," and confused "social" science with "socialism"; or they confused proposals to provide free bath houses for the poor with advocacy of "free love."

A turning point in the evolution of social science in America is symbolized by the movement that led to the formation of the Social Science Research Council in the early twenties. The Council was a federation of professional associations already in the field. The initiative was taken by leading social scientists who were convinced that the social sciences had a contribution of momentous importance to make, yet who believed that they were suffering from grave though removable handicaps. The chief handicap, they felt, was lack of training and lack of facilities to make genuinely effective application of scientific method to the study of man and society. As regards graduate training, they declared that education was too "book-bound." Social scientists, they said, had a vast storehouse of hypotheses about the rise, diffusion, and restriction of human culture and about the development of human personality. But these hypotheses remained empty meditations because they were insufficiently disciplined by data. Data must come from research in the field, from research in the laboratory, from research that makes concepts operational and obtains statistical series by which basic trends and conditioning relationships are brought to light. It was argued that the social sciences that had made the most intellectual progress, and which were also held in highest regard, had attained the best balance between formal theory and empirical investigation. Above all others they cited economics and economists. They could also cite the spectacular success in World War I of the psychologists concerned with personnel selection and measurement.

At this time a remarkably effective job was done of presenting the needs and potentialities of the social sciences to private philanthropists. It was argued, for example, that private charity to individuals was like swabbing up after a leaky faucet. The swabbing could go on indefinitely unless the faucet was fixed. Unless we learn the fundamental factors affecting social life we can never hope to repair our leaky institutions. Granted that no one could foretell in detail the results of giving support to the systematic and empirical study of human relations, the argument was that it was worth trying. The Rockefeller Foundation was the principal philanthropic source of support and encouragement for the social sciences in the period between War I and War II. The Social Science Research Council was organized in part to obtain professional advice about the best way to spend Foundation funds.

An influential conviction was that disciplinary barriers needed to be broken down in order to encourage cooperation among social scientists themselves, and between social scientists and other disciplines. The policy of interdisciplinary teamwork led to strikingly satisfactory results in many areas. For instance, child development institutes provided a framework in which pediatricians, individual psychologists, sociologists of the family, educators, social service workers and many other specialists could join together in common and interconnected research programs (as at Yale, the University of Minnesota, the University of Iowa, the University of California at Berkeley). Interdisciplinary cooperation was fostered in the study of local communities, with results of importance in urban sociology, economics and planning (in Chicago and elsewhere). Interdisciplinary teams were organized to execute long-term studies of primitive societies (e.g., the Navajo project in Anthropology at Harvard).

IV.

This was the epoch in which American social science greatly developed its distinctive theoretical emphasis. I shall refer to this emphasis as "social psychological," meaning that social scientists in this country sought to explore the interconnections between forms of culture and modes of personality development, and between modes of communication and the total process of institutional growth. Preference was given to mathematical and statistical methods of verification, since the social sciences were inspired by the possibility of achieving levels of certainty comparable with at least some fields and problem areas in the natural and biological sciences.

There is, of course, no mystery involved in this. Americans came mainly from many subcultures within western European civilization, and while they possessed many common predispositions, they were acutely conscious of national, ethnic, class, and related differences. Individuals were seeking to improve their lot by exploiting the opportunities available in a continental resource basin which was devoid of history. Individuality and individual problem-solving loomed as the focus of attention of these geographically and socially mobile millions. Those who specialized in academic skills came from this matrix, remained part of it, and eventually found themselves unsatisfied with formalistic accounts of static typologies of social institutions.

I shall undertake to provide some indications of the distinctive emphasis exhibited among the various branches of the social disciplines in the United States.

a. *The Theory of Society.* Comprehensive conceptions of society are put forward by anthropologists and sociologists, and they reflect the emphasis upon subjectivity and communication. Note the use of life history documents obtained by direct interviewing in the sociological work of W. I. Thomas and Florian Znaniecki, and in the study of primitives by Paul Radin. To bring out the contrast, look, for example, at the treatment of the mind of primitive man by Franz Boas and by Lévy-Bruhl, the French scholar. The stress on personality and culture has been distinctive since the days of Edward Sapir and Ruth Benedict. Theorists who have sought to integrate these newer methods and findings with the theory of civilized and folk societies are represented by the contributions of Robert Redfield.

b. *The Theory of Human Nature.* It was George H. Mead whose account of the development of the "self" provided the most profound account of how infants become persons. Americans had long been receptive to European initiatives in psychology; and it is pertinent to note in this connection that Freud's early "impulse psychology" became modified into social psychiatry under the special circumstances of the American environment. In academic psychology, "learning theory" was the most successful line of approach. Obviously the content of learning consists largely of patterns of culture; and learning theory was adapted to social psychological purposes by becoming concerned with the study of factors that affect the success or failure of patterns of culture as competitive learning models.

c. *The Study of Categories of Institutions.*

(1) *Economics.* At first glance academic departments of economics and research institutes are the great exception to the emphasis I am describing. Wesley C. Mitchell and the National Bureau of Economic Research are representative of the dominant emphasis upon quantified theory unaffected by psychology or sociology. Building on classical models of the pursuit of wealth outcomes, economics became successful in the translation of categories into operational terms quantitatively described. Today empirical and quantitative data are summarized in input-output flows and in many equally comprehensive results. But these activities do not exhaust all investigations of economic institutions. In the Graduate School of Business at Harvard, for instance, specialists of all kinds were mobilized to investigate the institutions conventionally called "business" and the choices made by participating groups. Elton Mayo is an example of the social psychological emphasis in this context and helps to give distinctiveness to the American study of economic process.

(2) *Jurisprudence and Political Science.* In these fields the emphasis is much plainer. The American legal realists concentrated upon the decision maker, especially the judge, and undertook to examine the legal process as part of the social process. Political scientists became especially concerned with the factors affecting leadership and collective changes of perspective, applying both brief and prolonged interviewing methods to the task.

(3) *Studies of the Family.* Here the distinctive trend is particularly obvious since a recurring problem has been to put every detail of "social structure" into the framework of the demands, expectations, and identifications of every participant. Data on child development play a dominant role in this context.

(4) *Education: Schools and Organizations Devoted to Skill in the Arts, Professions, and Vocations.* The "child centered school" of John Dewey's followers is evidence of the type of emphasis mentioned here. Today a pertinent development is the focussing of research upon conceptions of the self identity.

(5) *Religion and Ethics.* The line drawn by W. G. Sumner between folkways and mores depended upon differences in the subjectivities that were part of the patterns involved. William James' *Varieties of Religious Experience* helped to crystallize a tradition of psychological analysis.

(6) *Demography and Social Biology.* The study of health and disease and its role in personality and culture has been enormously influenced by dynamic psychiatry. The interest in psychosomatic medicine and the stress put upon the "therapeutic community" are indicative of this trend.

(7) *The Study of Caste and Class.* Anthropologists have become aware of the respect stratifications of society and have described their manifestations in our own society as well as in folk communities. The social psychological emphasis is expressed in the use of methods designed to see how class and caste groups perceive themselves and one another.

(8) *Studies of Mass Communication and Other Institutions of Enlightenment.* One of the most active new developments has been research upon the media of mass communication and upon the flow of information among influential people. Elite-to-mass and elite-to-elite communication have most recently been affected by small group experiments and by the engineer's conceptions of transmission sequences ("Information Theory").

d. *The Investigation of Man and the Resource Environment.* The emphasis upon the interplay of man and nature has led to ecological studies in which "human geography" has been a recurring theme. Many of the most conspicuous investigations have been in the field of "agricultural sociology."

At this point I should correct any implication that other established emphases have been neglected in this country. In the world picture the distinctive concern of American social science with individuality, with subjectivity, and with the development of appropriate methods (such as various forms of interviewing) is conspicuous. However, this trait is not to be interpreted as the exclusive or even the dominant characteristic of the social sciences of the U.S.A. All recognized approaches have been exploited; and all have moved toward quantification.

V.

The social psychologizing trend has affected the general conceptions of man and society which are current. I shall mention a few examples of this influence.

a. The usefulness of any two-term system for describing society has been undermined; such, for instance, as the "material-ideological" pair. "Ideological" requires too many subcategories to be a convenient label. It is important to distinguish attention-perception factors from value demands, expectations, and self-identifications.

b. Single factor systems of explanation have given way to multi-factor systems, and especially to multi-value systems. If "material" is understood as "economic," then we supplement analysis in terms of the optimalization of economic values by adding the study of the pursuit of power, respect, affection, and other values.

c. Any simple opposition of "human nature" and "society" has become antiquated. The significant oppositions are in terms of "part of human nature as modified by interaction with the social environment" versus other "parts" modified in the same way.

d. Conceptual tools and empirical methods of inquiry have been devised that make it possible to examine the significance of any conventional detail in terms of the whole social process of which it is part. What is conventionally called a "business," for instance, may be examined in terms of the role that it plays in the shaping and sharing of values other than "wealth." It may significantly affect "power" (if it is a coercive monopoly). The business may undermine the established class and caste system ("respect"). It may perpetuate or disintegrate family bonds ("affection"). By the encouragement of research and by means of its public information programs the business may affect "enlightenment." "Skill" is affected by the recruitment and training of various specialists. The levels of "rectitude" may be influenced by policies that encourage or discourage juvenile delinquency. And "well being" is affected by the policies regarding health, safety, and comfort.

The examination of details in the context of wholes may be conducted by "unsystematic functionalist" approaches (e.g., Malinowski) or by more recent "systematic" methods.

e. The possibility of several policy sciences is emphasized. In biology, for example, the value of health is sought through the development of medicine. However, the destruction of health is also sought by the instruments of bacteriological warfare. In political science we are developing both the sciences of democracy and the sciences of totalitarianism.

VI.

The social sciences do not monopolize all the intellectual approaches relevant to the problems of man in society. Any problem can be considered from the point of view of five intellectual tasks: goal clarification, trend description, explanation, projections into the future, invention and evaluation of alternatives. The social sciences obviously emphasize the third task, which is explanation in terms of mutual conditioning. But such findings affect the specification of a goal, give direction to further historical research, affect projections into the future, and widen the scope of policy evaluation and invention.

The challenge presented by any cooperative program to explore a given area or society is to mobilize all the available tools of theory and method and apply them to the context. It is true that distinctive opportunities are to be identified in every context; hence, one task of the Conference is to provide a working identification of these opportunities.

At the same time we remain aware of the fact that there is no advantage in trying to restrict the play of the mind to localized inquiries. We are first of all intellectuals who respect the mind enough to realize that a priceless asset of intellectual inquiry is the motivation to cope with a problem irrespective of the locus of the pertinent detail. We are concerned with making it possible for intellectuals who are usually residents of Taiwan or the U.S.A. to participate in the universal culture of the mind and to transcend as effectively as possible all parochializing barriers that limit the quest for enlightenment.

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THE PLACE OF SCIENCE IN MODERN LIFE

by John A. Wheeler
PRINCETON UNIVERSITY

"We, the intellectuals and common people..."

In May of 1895 Formosa had won freedom from continental China. She was not to come under effective Japanese rule until a year later. A new government came into being. A proclamation was issued beginning with these words, "We, the intellectuals and common people of Formosa, are determined to resist subjugation."

At first these words sound to us a little old fashioned. The modern world is a democratic world. We will not put any man on a pedestal of ivory and kow-tow to him. We rightfully refuse to regard the scientist or the professor or the business man as a sacred cow. No one today is an object for worship because of his position. The world of today is so complex that everyone is in some sense called upon to be an intellectual. We have given up the idea that some people are surplus. We think of each fellow citizen as a potential national asset. We demand a higher standard of public education and better libraries so that everyone can contribute more from the ability that lies within him. That is a part of the modern outlook that we are determined not to give up. We cannot give it up. Any nation that abandons that ideal will go under.

As we turn back to the declaration of 1895 and read again those words, "We, the intellectuals and common people of Formosa, are determined to resist subjugation," still more thoughtfully, we nevertheless begin to appreciate more sympathetically what its authors had in mind. We think of the old days and the traditional scholar-gentry class that then existed. We recall the high tradition of public service that had come down to that class from ancient China. We realize some of the implications of that phrase, "We, the intellectuals..." — not "We, the privileged intellectuals," not "We, the high and mighty intellectuals," but "We, the intellectuals whose deep obligation it is to plan ahead for the welfare and safety of all of us, and we, the everyday people who also think and plan, but not on so large a scale, we stand united in the defense of our country and its future—our fates are tied up together." So we might paraphrase some of the ideals that lay in that 1895 statement.

Let us then take the Formosan declaration, not in an unworthy way, but as signifying in this higher sense a special dedication on the part of a special group of people, an extra obligation to serve. How then can we formulate the distinction which it contains in these days when everyone, in every walk of life, is forced in some sense to be an intellectual to meet the problems of the day?

I propose that we distinguish between a light intellectual and a heavy intellectual. This distinction has nothing to do with diet, or if it does, the connection escapes me.

Light industry and heavy industry

Our colleagues in economics differentiate between light industry and heavy industry. Powdered metals, they tell us, belong to heavy industry, because materials furnish the wherewithal for other industries to build upon. Houses on the other hand, they remind us, belong to light industry, because they serve the consumer directly. Heavy industry is the foundation, even when it deals with objects as light as grains of metal. Standing upon that foundation is an industry called light, even when it constructs objects as heavy as houses.

The light intellectual and the heavy intellectual

If we follow the lead of economics about the meaning of light and heavy, what shall we mean by a "light intellectual"? A light intellectual, we will say, is one who keeps the machinery of life going. He doctors the sick, he renders legal judgments, he gives the accepted instruction, he governs the course of trade. And what is the "heavy intellectual"? The heavy intellectual opens the way to new avenues of existence. He finds a new way to fight disease. He conceives of a new legal invention to pledge the credit of a state so it can build a superhighway where only a poor road was possible before. He changes the nature of thought and forces a revolution in the text books. He conceives of a new industry. If he is a poet or a writer, like our friend Dr. Hu Shih, he may accomplish the greatest miracle of all, and raise up the whole spirit of a country.

If we accept the distinction between light intellectual and heavy intellectual, between those who keep the world going, and those who move the world ahead, then we can say that this conference is concerned with the obligations and opportunities of the heavy intellectual, especially as they concern Taiwan and the United States. My special subject is then the work of the scientist as one particular kind of heavy intellectual.

Contributing as a heavy intellectual to science

I am happy to speak on this subject because today and in the United States there is no better known way for a young man to become a heavy intellectual than to follow one or another of the natural sciences. The number of degrees of Doctor of Philosophy furnishes a simple measure of the trend to this career. The number of these degrees awarded in the sciences has increased since 1885 on a curve almost regular except for the periods of the two wars. On the average the rate of production of Ph.D.'s has doubled every ten years over a period of 75 years. If the rate of increase continues, and if the present rate of population increase also continues, then a few years after the year 2,000, one person out of every 50 will acquire a Ph.D. degree. If this figure sounds fantastic, I can only say in reply that the frontiers of science are limitless. When young man after young man steps straight out from his Ph.D. training into a $10,000 a year job, no one is going to keep other young men free from emulating them. They have an increased sense of conviction on this point because they see no other career open to them where they can be more useful to the country.

The number of Ph.D.'s in the biological sciences is increasing even faster than the number in the physical sciences. As Conant puts it, the first half of this century belonged to the physical sciences, but now we have moved into the half century of the biological sciences. The trends in advanced training lie under the continual observation of the Committee on Fellowships of the U.S. National Academy of Sciences—National Research Council. Within the past five years, that committee finds, the number of Ph.D. degrees in the biological sciences has for the first time crossed and increased above the number of degrees of doctor of medicine.

Hand in hand with this growth in the number of science degrees—degrees both in the biological and in the physical sciences—has gone a growth in scientific activity. Research in government and industrial laboratories has doubled roughly every ten years. When choice is not enough to bring about this increase, the compulsion of competition takes hold. Few industries are more competitive or more rapidly changing than drug manufacture. It is not surprising that the expenditure on research in this industry is unusually high, with figures like 10 per cent not being untypical. In the chemical industry the expenditure of research runs closer to 3 per cent. How important that expenditure is can be seen from one simple circumstance. Most of the business of our larger chemical companies today lies in products which did not even exist 25 years ago.

If competition forces research, and research forces progress, then one sure way to prevent progress is to set up monopolies ensured against all competition.

Rate of expansion due to innovations in science and technology

It is not enough to make minor improvements to stay in the stream of activity today. The carriage maker was making minor improvements in his product in the early years of this century. That did not save him from extinction at the hands of the automobile industry! One of my friends in an industrial organization came up with an idea recently to use the waste steam in a certain large plant to accomplish new and useful things. The change would have cost $50,000, but the return on this expenditure would have been 20 per cent each year. He was told that it was outside the policy of his company to spend money on improvements that gave a return so small. It was necessary to have a 30 per cent return before it was worthwhile to invest money in a new process. This number is a measure of how rapidly things are changing today!

I have an atlas dating from 1906. On that atlas I turned not long ago to the Netherlands, a country not very different from Taiwan in size and population and crowding of population. On that map I saw a tiny dot, the smallest dot that the map maker allows. That dot stood for a community with a population between five and ten thousand, the little town of Eindhoven. Today Eindhoven is one of the great cities of the Netherlands. Its population numbers 134,527. What is the explanation? Was a gold mine discovered? No, a few "heavy intellectuals" came up with the ideas that built the Phillips Electric Company, a company which makes lamps, electrical appliances, radios, X-ray tubes and a multitude of more sophisticated items. One could count on the fingers of one hand the names of the men whose ideas started off that enterprise. To a place that had almost nothing they gave one of the great industries of the world.

The possibilities for invention are not limited to the physical sciences, as we know not least from the work of Pasteur. Nor is it necessary to have great industries to benefit from invention, particularly in the area of the biological sciences. It is enough in this connection to recall the great effect of hybrid corn on farm productivity. The contribution of this development to the world's economy long ago passed the billion dollar mark. Yet this development was brought to pass by the research of a handful of men.

Science, technology and defense

Our possibilities to provide a future for our children and our children's children depend today not only on our farms and our industries, but also upon our defense posture.

There was a time when it was as impolite to speak of national defense in public as to mention sex. Today we are willing to admit that continued existence is impossible without either.

We have also discovered that the defense of the free world depends as never before on technological advances which may be made by one or two men or by a small group. The other day, reviewing in my mind the programs of the two United States laboratories concerned with nuclear weapons, I counted up those men who are at work trying to contribute decisively new ideas for use in case of dire emergency. It was fantastic to discover that only eleven men are concerned actively in this very forward area. What a world, where the liberty of over two billion people can depend on the labors of fewer than a dozen men!

However much the safety of a free society depends upon technological advances, it has come to depend still more upon the good sense and resolution of the average well-informed citizen. He had the good judgment not to believe that nuclear weapons foretold the end of life on earth nor even—unhappily—the end of all war. He knows that a balance of strategic deterrent power is the best guarantee we have today against the outbreak of a war at the all-out level.

However, it is also conceivable—he realizes—to be pushed into a major war through what was in the beginning a localized conflict, which then grows and spreads out into an all-out struggle. Therefore his attention extends to trouble spots all over the world. He knows that the problems are less technological than social, economic and political. Therefore he votes for representatives who will spend his tax money and find men—"heavy intellectuals"—to deal as wisely as they can with these larger issues. At the same time our responsible fellow citizen knows that social and economic development cannot come without peace, and peace cannot be maintained in troubled areas without force. He recognizes that the kind of limited war force required for this purpose is completely different from the strategic power required to deter all-out war. Limited war defense makes its own heavy demands for imaginative thinking. At China Lake in the California desert, a few years ago a small group of men conceived of the now famous Sidewinder missile. Only a few months ago a fraction of the Taiwan Air Force, equipped with these small and ingenious devices, turned back the attack of a great and aggressive air armada in a decisive battle.

As in this example, so in many free world countries small groups of dedicated technologists and scientists are working on imaginative new devices and new ways of doing things. These "heavy intellectuals" work to preserve peace today so that other groups of "heavy intellectuals"—such as our honored colleagues in this meeting—can strike the still more decisive blows for a better tomorrow.

Scientists in action

The contribution of science, whether to defense, or to agriculture and medicine, or to industry, is marked by nothing so remarkable as this, that decisively new advances come from small numbers of men. In other words, we have in science a new way to help get on with our human problems. Therefore let us turn from the results of science to a few word pictures of scientists in action. Let us then conclude this discussion with a few concrete proposals that our conference might consider.

We look more at scientists in action and less at the subject matter of science because we are more concerned here today with spirit and human values than we are with the nature of matter and energy.

Yang and Lee and the symmetries of spacetime

Let me begin with my friends T. D. Lee and C. N. Yang. They are disappointed that pressing obligations prevent them from being with us during these days. They work in the environment of Princeton and Columbia. To them the problems of the elementary particles, and the decay and transformations of these mysterious entities, are a day by day source of worry and concern and delight. Studying over the observational evidence and the past interpretations of that evidence, they found themselves forced to question the then current assumption that the physical world is symmetric between left handed and right handed. In other words, the collisions and spontaneous breakups of elementary particles, when regarded in a mirror, might well really be different in character from the events seen by direct vision. They took this idea seriously and worked out its consequences mathematically. The results led them to suggest new experiments. Their suggestion was taken up by that distinguished and charming and active experimentalist Miss C. S. Wu (Mrs. L. Yuan). In collaboration with others at Columbia and at the Bureau of Standards in Washington she carried out decisive tests. Electrons come out of atomic nuclei, the group found, spinning about their own axes preferentially to the left. The world is not symmetric between left and right.

Most of you have seen, I am sure, the address Yang delivered at the time when he and Lee received the Nobel Prize for their work. In it he acknowledges his double indebtedness—to the cultural tradition of China and the specific tradition of the West. Today both continue their work actively in the Western world. There the contacts are richest, there today the freedom of inquiry is greatest.

Human relations in the profession of theoretical physics, as in many other branches of science, have interesting and unusual features. Members of the profession belong to a kind of island of culture. Physicists in London, New York, Berkeley, Princeton, Paris, Taipei, and Bombay often know each other better than they know their colleagues in other fields of work in the same community. They must if they are to keep up with their work. Some are like bumble bees. They go about from flower to flower picking up pollen in one place and fertilizing blooms in another place.

The importance of human give and take, of an atmosphere of lively discussion, shows also in another way. The articles today in physics and in other fields of science are written far more often by two or three collaborators than by a single author. To cut oneself off from the flow of ideas is often to decrease one's effectiveness. As Kettering puts it, "When you lock the laboratory door, you lock out more than you lock in." Secretiveness is a symptom of sterility.

The Geneva Conference of 1955 on peaceful uses of atomic energy provided for many scientists their first opportunity to exchange ideas with their Soviet colleagues. For ten years the International Union of Physics had worked to bring about a substantial East-West meeting. At last nuclear energy of all subjects was leading to the rapprochement. The program was full of papers about power plants and the energy needs of the future and the world reserves of uranium ore. But this formal program was given second place by many of the Soviet and Western physicists as soon as they found informal contacts were possible. A group of about forty went off into a room much smaller than an auditorium. There they shared on a blackboard their ideas, their results, their worries, their hopes, their concerns, and their dreams about the structure of elementary particles and the nature of matter and energy. It would be difficult to name any field of activity where the spirit of give and take is more prevalent than in basic science, nor one where political and ideological differences interpose fewer obstacles to genuine human understanding.

The field in which Yang and Lee work is thus one where it is essential to maintain wide contacts; one where a man puts himself at a handicap if he goes to a center too separated from others to allow stimulating week to week contacts with workers from other centers. It would be a mistake to conclude, however, that every field of science, or even every field of physics, demands a large center for its most effective cultivation. There are many subjects in which a small school can achieve great results. An example is

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furnished by the work now going on at Brigham Young University in Utah on the physics of high pressures. Two or three good men at modest expense are breaking new ground, and supplying leadership of high quality to their field.

Watson and Crick and desoxyribonucleic acid

Let me turn now from Yang and Lee and physics to my second case example: Watson and Crick and what they have done for biochemistry. James Watson is a young biochemist at Harvard. Crick is a crystallographer at Cambridge University. Their attention centered on the structure of a substance known as desoxyribonucleic acid—DNA for short. This substance has never been synthesized. However it occurs naturally in the nucleus of the living cell. The fundamental problem of life and growth and reproduction leads back always to the still more basic question how a cell divides. When and how the cell divides to form two new cells is governed by the central nucleus of the cell and by the division of this nucleus into two new nuclei. Before the work of Watson and Crick it was generally agreed that one of the constituents of the nucleus—DNA—has something important to do with the act of division. However, neither the structure of the DNA molecule nor its relation to the act of division were known.

Watson went from Cambridge, Massachusetts, to join Crick at Cambridge, England, because there the facilities for crystallographic analysis were most suited to their work. Their ingenious analysis led them to the model of the DNA molecule shown in Fig. 1. This essential ingredient of all life processes is endowed—they had to conclude—with the amazing structure of a double spiral. Each of the two strands in the spiral is made up of shorter segments—the so-called nucleotide molecules or nucleotides—fitted together one after the other. As a consequence of the work of Watson and Crick, one now has a model to account for the elementary act of duplication in the life process. The spiral of two strands unzippers to make two spirals. It might appear that each new spiral would have only a single strand. Not so! The double spiral begins to come apart at one end (Fig. 1), but not in isolation. It is surrounded by a nutrient fluid containing many nucleotides. They are potential building blocks to form new strands of spiral structure. This building process goes on at points A and B (Fig. 1). It ensures that the two new spirals in process of building will each be double. Moreover, the ordered pattern of different kinds of nucleotides in the chain—like different kinds of letters in a word—is replicated. The two new double spirals, letter for letter, are duplicates of the old one. What a beautiful and simple foundation for the science of life and growth!

On the foundation of the work of Watson and Crick, further advances have already been made in our knowledge of the replication process. It had been feared by many that the unzippering of the spiral molecule, simple as it is in principle, would prove most complicated in actual operation, requiring by way of assistance and support all kinds of enzymes and supplementary cycles of chemical reaction. However, recent experiments

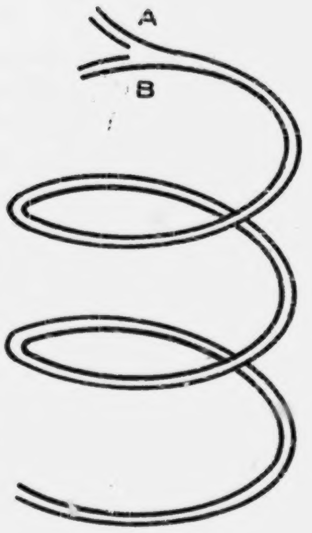

Fig. 1. Schematic diagram of the beginning of the "unzippering" of a spiral DNA molecule to start the formation of two new DNA molecules.

reveal that little more is necessary for duplication to begin than to put a few DNA molecules into a solution containing the appropriate nucleotides. For DNA molecules to replicate under these conditions turns out to be almost as simple as it is for water to flow down hill.

In consequence of this newly discovered simplicity of the process of duplication, the problem of life has completely changed its character in the last three years. Instead of asking how replication takes place, we now have to ask, what keeps it from running away in you and me? What is it that determines the difference between the living cell and cancer? How is the process of duplication kept under control and channeled into orderly growth? What a challenging issue this problem of biological control poses for the future!

The symbiotic relation between student and scientist-teacher

What now of the human side of this second case history? The kind of work we have been talking about is done by several professors and several students, working on individual projects, but in day to day contact for advice and mutual stimulation. There is a close interaction between teaching and research. There is none of the isolation of a "pure research institute" cut off from all instruction and all contact with young minds. Kapitza, the great Soviet scientist, wrote to his colleagues in 1944 in a white heat of concern about the state of science in the U.S.S.R. He was worried about the divorce between the institutes and the universities. He was disturbed that the great men were drawn off to monasteries where they had no students. He feared equally that the universities were being left with only third-class professors without power to fill students with interest in their subjects. He pleaded for the inspiring man working at the frontiers of science to speak to the younger man and to draw him into his subject, to enlist his potential enthusiasm and his sense of dedication.

The words of Kapitza are as relevant in our own countries as they are in the Soviet Union. We all know the signs of an institute that is drying up. Members creep on along their narrow ruts working in isolation from their fellows. No series of lectures imposes the demand to review one's field. The member lacks that old and effective impetus to seek out the wider relations of his subject. He has a lesser stimulus to find uncharted areas and to put what is already known in a new and more useful form. In contrast to the great universities and the great institutes, like the Institute for Advanced Study, the Institute-in-Isolation has no life-giving stream of bright young men. Young man? Student? No, Conant has a still better word: the man with the uncommitted mind. He is the man who is curious, the man who is waiting to throw himself into something challenging and important. He is the man who thrives on contact with a leader and adds to his force. If there is no way for the older worker to pass on the seed to the young man with the uncommitted mind, there is little opportunity for the new heavy intellectual to come into being. For this reason it is inspiring to visit the laboratory of James Watson and of many another leader in present day science and see the young men at work and in discourse.

John Tukey and the statistical generalist

Physics and biochemistry are disciplines where the workers make their own direct contact with nature. Let us turn now to a third example of science in action: statistical analysis. The statistical analyst uses mathematics to extract the meaning out of observations which have generally been made by other workers and which are afflicted by "noise." Noise he uses as a general term to indicate disturbances from unpredictable sources. For example, in trying to understand the selling prices of securities, he looks for general trends against a background of day to day fluctuations. But the scope of statistics, both in science and in planning policy, is much broader than this example might suggest. Consider by way of illustration the work of Prof. John Tukey. Most recently he has served a number of months on the joint U.K.-U.S.A.-U.S.S.R. board looking for a reliable way to distinguish underground weapons tests from explosions. Before that he had much to do with recommending the policy of the United States Pure Food and Drug administration with respect to safe dosages of drugs, taking account of the varied response of one individual as compared to another. Earlier he served on the National Academy of Sciences committee examining the statistical validity of the techniques used to study sexual behavior. Tukey, though primarily a professor of mathematics at Princeton, also helps guide a group at the Bell Telephone Laboratories. Make a long distance phone call by direct dialing. Listen to the musical tones that carry the called number across the continent. Will the automatic circuits dial the number reliably at the other end? Here there come up important questions of balance. How does the cost of so-called redundant or check-up information compare with the importance of reliability? In scores of questions like these the statistician makes the difference between an unreliable judgment and a first-class outcome. The imaginative statistician, far from being a narrow specialist, is often the direct opposite—a *generalist*: a man who can walk into almost any scientific or commercial operation, find a numerical way to analyze what is going on, and increase output.

The methods of the statistical generalist can be put to use by almost any one who has some basic education in science and some imagination. He needs what might be called an emergency kit of statistical tools, such as Tukey has made available to those associated with him. And he needs a variegated set of case histories set down on paper so that he can see how those tools have been used in practice. May some enterprising young collaborator of Tukey, some Dr. Watson, someday provide us with such an account! I for one would like to have stories of the emergency tool kit in action on problems ranging as widely as individual differences in susceptibility to drugs, the twinkle of starlight and its correlation with atmospheric disturbances, the quality control of manufactured products, and the consequences of all-or-none representation compared to proportional representation. Each story in "Case Histories of a Generalist" would begin at the moment when a phone call or letter reaches the Sherlock Holmes of the statistical world. It would touch on the human aspects of the problem. Of course it would also describe the mathematical analysis—how the statistical tools are put to use. It would include not only the conclusions but also how they were "sold" to those who had to put them into action. It would end with some account of the pay-off. The gains to the economy and productivity of a country—any country, at any level of industrialization—from such mathematized use of intelligence are so great compared to the cost involved that a sound and imaginative statistical generalist ranks high among heavy intellectuals!

Copenhagen and Niels Bohr

My fourth and final example of science in action is the Institute for Theoretical Physics at Copenhagen. Many regard it as the intellectual center of physics. It is the place where many a physics pilgrim goes to talk and dream and debate about the present problems and future prospects of his subject. Niels Bohr is the Confucius, the Plato, the Lao-Tze of Copenhagen. Many legends and many true and wonderful stories are told about Bohr. He divides the week in effect into even-numbered and odd-numbered days. On a day of even number every glimmer of an idea that might help with the problem at hand is seized upon, is built up, is expanded. What is useful in an idea is the focus of attention, not what might be wrong about it! The construction of ingenuity and hope that stands waiting the next morning receives all that day an often devastating series of tests and criticisms and checks. If by night anything is left, it serves as foundation for more building on the next even-numbered day!

Niels Bohr is also the man who says there is no hope of making any progress in one's subject unless one is confronted with a paradox or difficulty. Even so one's hopes are small until at last he finds a second difficulty. Then at last one can play off one difficulty against the other and begin to move ahead!

One comes to understand at Copenhagen what is the place of theory in the description of nature. The word "theory" in physics as in most of science is not at all synonymous with the word "hypothesis." Instead it stands for an orderly pattern in which to arrange one's knowledge about a certain field. It consists of concepts and of methods of measurements and finally of what many workers call "laws" but what Bohr often more descriptively calls "regularities." In the past it has often been said that each new field of human knowledge must begin by defining its concepts. "Define your terms!" How oversimplified and even false it is to begin in this way, one learns in physics. One has come to realize that the concept which one uses is itself defined by the theory in which it enters. One would be unable even to define the concept properly—for example momentum—if one had no theory—such as the law of conservation of momentum—in which the concept entered. Measurement, too, would be completely impossible without theory, just as theory would be impossible without measurement. One has therefore come to realize that the three organizers of knowledge—concept, method of measurement, and theory—do not come into being in stately hierarchical order but in one single tumultuous creative act. At Copenhagen one thus sees that those who themselves take part in adding actively to human knowledge are perhaps more easily than others able to help us understand both the nature of knowledge and bounds of the knowable. And out of Copenhagen comes Bohr's definition of science as that human activity which is concerned with extending the range of our experience and reducing this experience to order.

Many lessons can be read from the talks and work at Copenhagen, among them not least this, that the highest form of productivity flourishes in an atmosphere of warm human regard one for another. But enough of word pictures of science in action, from Yang and Lee and the symmetries of spacetime, through Watson and Crick and the nature of life, and the work of Tukey and the statistical generalists, to Bohr and Copenhagen and the nature of knowledge.

No static well-accepted outlook today

Let us instead try to assess—from these examples and from what we see going on about us—the nature of the new culture we live in today. How different it is from the past! Agriculture each year constitutes a smaller and smaller fraction of our entire civilization. In the United States in the single year 1957 over 10 per cent of the people living on farms left to go to larger communities and different work. In other parts of the world, for example in Taiwan, the change has proceeded at a different rate but in the same direction. Human values are not exclusively set by any static society of those who own land. We do not see any more the son going out from the Virginia plantation only to read Thucydides and Tacitus and the great examples out of Plutarch's "Lives." Nor do we find the young man coming out of a scholar-gentry class only to study the Chinese classics and take an essay type of examination upon them, wonderful though the training was in human values which was secured in this way. Our able young people today train in much smaller numbers for a land-owning and agricultural life, and that in quite new ways. Mostly they prepare themselves for occupations which did not even exist a few generations ago. Often they realize that they may well be working a few years from now in professions which even today have not yet come into being. Between one man and another there is not the common perspective of older days. About the significance of human life there is no universally accepted outlook. The theory of evolution has brought new insights into this question. They are far from having yet been fully absorbed into our culture. Compared to evolution, there is hardly any development out of science to which different groups of people react more divergently.

Today each country is less and less aptly described in terms of one culture—Confucian or Greco-Roman or Judeo-Christian—and more and more appropriately viewed as a collection of cultures built around different professions and different fields of subject-matter specialization.

In the past with its single culture the teacher was often a man of character and intelligence who did his duty when he discussed with his students the greatest men of all times and of all countries.

The new training in the art of finding out

In the specialized world of today no university fulfills its responsibility to society which concerns itself only with what is already known. It must be occupied even more heavily with the art of finding out. Young men moving up one or another of the many streams of culture that we have today, working in one or another foundation field of human knowledge, must find in our universities the doorways that lead on to new advances. Not merely to receive from their professors, but to work alongside them, is the new dispensation. In the university of today that member is behind who is not contributing actively to the subject he professes, not only through his own efforts, but also through the students he trains.

How can young men possibly be trained for the changing modern world unless the older men who train them are themselves leaders in the transformation of thought? It is difficult to name anything more important for creativity than the feeling that one belongs to an outstanding group which is ahead in its chosen field of work. As Conant puts it, one cannot build up a first-class university by naming to it very good men. One must have the best! Or to put it in other terms, it is not being very useful to society to be the *second* investigator to find out a new truth!

Great opportunity also for smaller institutions

There is nothing about this demand for leadership which the smaller university cannot meet. On the contrary, it would be easy to name in physics alone at least twenty fields of investigation well suited to the budgets of smaller institutions. Every one of the twenty has its own special advantages for the training of much needed young men. Every one is important to science and society. And in every one the world today is sadly behind. Let us hope that the smaller institutions of our two countries will begin to make the kind of contributions, not only in physics but all across the board, that the world's more research-minded universities have already shown to be possible and needed. Then we shall have intellectual cooperation between East and West in its highest form—a collaborative effort to push back the boundaries of human knowledge.

Five proposals for intellectual cooperation between Taiwan and the United States

Now after these general remarks about science and society you have every right to ask me to be more specific. Let me therefore venture to put forward five specific proposals for intellectual cooperation to help both our countries. The proposals are experimental and tentative and illustrative only. They illustrate perhaps as much as anything how past contact with several large projects to do the impossible can condition at least one physicist to think! They are tentative in the sense that they are put forward for suggestions and modification. They are conceived of as experimental in this sense, that what is found to work in one smaller independent country like Taiwan—and in its intellectual contacts with the United States—may be copied if desired by other countries in comparable circumstances, and in certain areas of the United States as well. With fifty states going their own ways on a variety of local experiments we have much to learn from at home. However, even more valuable lessons may be drawn, we may hope, from watching experiments run in a country which mingles modern ways with the proud and free culture of ancient China.

The five proposals will not be limited to the field of physics or even to the domain of science.

PROPOSAL 1: TAIWAN PRODUCTIVITY RESEARCH INSTITUTE

The first proposal calls for a Productivity Research Institute, with three purposes: (1) to carry new developments from science into the life stream of the country; (2) to develop new products and processes, and improve existing processes; and (3) to provide a route for young men with some training in science to contribute to their country in practical ways.

Examples of such institutes

This kind of institute is more and more needed as science becomes steadily more sophisticated and as the gap widens between the kind of science which is developed in universities and the kind of science which is put to work in the national economy. The Institute of Physical and Chemical Research in Tokyo is a particularly happy illustration of this kind of bridge between science and society. This institute is closely tied with the name of Nishina.

Nishina was one of the great leaders of science in Japan. He received his higher training in physics at Copenhagen. He contributed there in a decisive way to understanding the interaction between light and electrons. On his return to Japan he was a leader in building up the Institute of Physical and Chemical Research. At the end of the war that Institute had fallen on evil days. Very little came to it in government funds to carry on its pure research. It had to turn to industry to seek support. It formulated research projects that could be sponsored by industry for the benefit of industry. It brought into being in this way a very great research activity. It contributed to developments as different as the pearl industry, the manufacture of optical devices, electronics and semiconductor applications, to mention only a few of the Institute's many activities. It offers a career by which a young man can contribute in an important way to the development of his country.

On a visit to Japan in 1953 I saw Buddhist priests in the street in yellow robes, bowl in hands to receive offerings, men looked up to because of their devotion to the highest human values, but doomed to poverty because they lack any direct connection with the main stream of their country's economy. Then I saw the young theoretical physicists at Kyoto. Again there was the devotion to truth, again the respect of fellow citizens and again too often, I am sorry to say, poverty. But fortunately these young physicists have open to them in the Institute of Physical and Chemical Research and in other research organizations a workable way to convert ideas and originality and good judgment into results that all can see and value and reward. This kind of institute changes ways of production, creates new jobs and expands the economy.

In the United States productivity research institutes are more than doubling in activity every ten years. The Stanford Research Institute recently issued a comprehensive report—to take an example almost at random—setting guidelines for the lumber industry, and charting new activities in which the most rapid growth can be expected. The largest such research organization in the world, the Battelle Memorial Institute, with laboratories at Columbus, Ohio; Frankfurt, Germany; and Geneva, Switzerland, has more than three thousand scientists, engineers, technicians, and economists. It has contributed decisively to subjects as different as the metallurgy of uranium and plans for the economic development of Alaska.

A country does not have to be large and industrialized to profit greatly from an institute of this kind. The Ceylon Productivity Institute is a case in point. Starting with a very small group this institute has made important contributions to the economy of Ceylon, one of the prime examples of so-called raw material countries. The story of the Institute makes inspiring reading. In its earliest days not even plumbers and electricians were available to put in the pipes and wires that were needed. The laboratory members had to do this work themselves. Many suffered from social taboos against stooping to manual labor. They went ahead and did the job in spite of those taboos. That earthy start produced team spirit. It produced also the try-anything spirit without which a productivity research institute cannot flourish!

Nature of proposed Taiwan Productivity Research Institute

Some details of scale and nature may be appropriate to put the proposed Taiwan institute into perspective. Location near a university is best. Members of both institute and university will derive stimulus from their discussions. Even more important, capable young people will hear about the problems being tackled at the institute. They will realize that they can contribute. They will see that there are far more jobs to be done than there are trained people to do them. They will grasp the idea of an expanding economy, of Vannavar Bush's "Endless Frontiers."

The institute should be independent. It should have a board of trustees of its own, selected for example from members of Academia Sinica and prominent public-spirited businessmen. Its work will benefit the forward-looking sectors of the economy and give them a competitive advantage over static and protected enterprises. The whole spirit of a productivity research institute runs contrary to monopoly, government control, and rigidity. There is nothing that worries government officials so much as change. It is best to remove completely from their hands an institute whose principal job it is to produce change! Moreover, it is important that the institute itself—and its members—have the incentives that come to it directly from those it serves as reward for work well done: bigger laboratories, better equipment, and more nearly adequate library.

As for size, a modest start should be adequate: three senior men with Ph.D. training, three younger men also with Ph.D.'s or equivalent, and thirteen younger men and technicians. It would be reasonable to look forward to a growth of the institute rapid enough to double its size in ten years or less.

Many areas invite the attention of such a productivity research institute: (1) Improvements in the manufacture of paper. (2) Development of fiber products. ((3) New uses for wood. In this connection one thinks of creative art. It took only a small group of artists in Denmark to lead to a great expansion of the Danish furniture industry. The Chinese tradition of beautiful design gives Taiwan advantages which it has hardly begun to exploit. (4) Mining and manufacturing processes. (5) Chemical industries based on Taiwan sulfur and oil.

The areas in which to start work must, of course, be carefully selected. The choice might well be made with the assistance of a visiting committee of two or three. It would be helpful if one of the members of this committee could be someone like Alexander King who has achieved such remarkable results in improving productivity in the Organization for European Economic Cooperation.

Cost

Such an institute needs funds to start it off of the following general order of magnitude (expressed in U.S. dollars):

Building and equipment at start		$150,000
Salaries and expenses not covered by financing from the organizations with which the institute has contracts		
	First year	150,000
	Second year	125,000
	Third year	75,000
	Fourth year	50,000
	Fifth year	25,000
	Total	$575,000

Once started, a well-run productivity research institute is more than self-sustaining. Out of the work it does for commerce, government, and industry come funds which enable it to expand its services. It should be self-sustaining in five years or less.

Action

If the members of this Conference judge that such an independent self-sustaining productivity research institute makes sense, the Conference can so recommend, and ask the Chairman of the Conference to transmit this recommendation to an appropriate foundation for action.

Proposal 2: Talent Certification

A mechanism is needed to supply reliable information to western colleges and universities about talented young people from Taiwan applying for training overseas. At present many Western institutions are reluctant to accept students from India and Taiwan—to take two examples—because of uncertainties (1) about the young man's training and native ability and (2) about the chances his talents will be put to good use in his home country after he has been trained. The first of these two important problems is the subject of this proposal.

There is, of course, no problem of talent certification when a well-known man like Dr. Wu gives a high recommendation to a young student, such as he gave to C. N. Yang. Western universities seek after such a man even when he is as young as Yang was—and I well remember meeting him shortly after his first arrival in this country. But I also remember that in 1959 Princeton University received 16 applications from young men in Taiwan, all wanting to go into theoretical physics. Moreover, the recommendations—not from Dr. Wu—made each appear comparable to Yang and Lee. No information was available to discriminate between these young men. It was obviously impossible to admit them all. Consequently it was impossible to admit any one of them.

The University of Rochester public spiritedly has been doing more than most institutions towards training young men in physics who come from overseas. Out of its experience Rochester has found that students applying for graduate work are often well advised to take selected courses at the undergraduate, junior, and senior level before embarking on full-scale graduate work.

Apart from these problems of evaluating native ability and training, there is the still greater problem of deciding which young man has the character and dedication to go back, after his training, and contribute to the development of his country under what are often adverse circumstances. I have been told that in the past ten years approximately seven hundred young people came from Taiwan to the United States for training, and that approximately forty have returned. The direct gain to the United States from this flow of talent is of course substantial. Indirectly, however, this country loses, because one of its very important partner countries suffers a crippling loss.

How then can one select for overseas training young people who meet the three requirements of ability, training, and responsibility to Taiwan, China? Fortunately there is already at work in an older group of ages a mechanism of talent selection which meets these requirements and which works well. I refer to the visiting research scientist program. Outstanding senior men have been selected on that program. They come from Taiwan to the United States for training. They return to Taiwan more useful for their period of work abroad. The prestige of the Academia Sinica is involved in the evaluation and selection of these senior men. If it were to commit itself also to specific younger men in search of Ph.D. training abroad, there would be little doubt about the welcome of these students in American universities. *I propose therefore that this Conference through its Chairman ask The Institute of International Education or other appropriate agency to arrange with Academia Sinica or otherwise to extend the present good system of talent certification from senior men to aspirants for advanced degrees.*

Proposal 3: Annual School and Library Competition

The state of Wisconsin has conducted a competition between community and community. Outside groups came in to evaluate schools and libraries and give a total community score. The highest ranking communities, and those that made the greatest improvements, received special awards. The competition attracted much public attention. I propose to our friends from Taiwan a similar school and library competition there. We in the United States would surely learn something of use at home and abroad if we could see this kind of competition in action in a country so interesting as Taiwan, China. Of course for Taiwan itself the principal motive for setting up such a competition would be the stimulus to the life of the country.

Conant tells us that no one stimulus is more important to a community in building up its schools—and, by the same token, in building up its library—than knowing how it stands in each aspect of its effort relative to other communities. Granted this knowledge, community pride and community self-interest will accomplish wonders.

The value of focussing local attention on what is important is shown nowhere more clearly than in the old woodcuts of Charlemagne that many of us have seen. The great ruler appears at a local school presenting prizes to the top students. How inexpensive—and how effective!

If the members of this Conference regard this proposal as useful, *the Conference can so recommend to our Chairman.* He and others among us could then discuss the proposal with influential individuals in Taiwan, China, and the Ministry of Education. This procedure seems reasonable if the local communities and the Ministry of Education are jointly to invite the visiting committee.

While we are speaking of evaluation, can we not make it into a two-way street? Can we not ask for a visiting committee from Taiwan, China, to evaluate the programs of Asian studies in *United States* colleges and universities? Would not such a rating device lead to some much needed action? *If the Conference approves of such action, it might so recommend, leaving the recommendation to be transmitted by our Chairman to the Association of American Universities and the Association of American Colleges, and to be followed up by him.*

PROPOSAL 4: CHINESE AND AMERICAN CULTURAL SOCIETY

This next proposal is the most daring one I have to make. Its purpose is to make interest in Taiwan, China, culture widespread and popular in the West.

Chinese culture is ancient and proud. Why should Taiwan, China, bother to spread knowledge of it among ignorant Westerners? For two reasons. First, the West finds itself having to make immensely important political decisions that concern its relations with Asia and with the two Chinas. Second, to the extent that Taiwan, China, consciously separates out of its inheritance and propagates today what is strong and valuable for the modern world, to that extent it makes itself a leader not only in the thinking of Chinese everywhere, but also a leader in world opinion. It will gain in prestige and influence.

No country has been so deprived of prestige and influence as one that was occupied by Hitler, as Denmark was for example. Yet in those days of despair the leaders of Danish thought raised new hope and pride in their fellow countrymen by preparing and issuing a great review of Danish culture.

I propose here, however, a device for upholding and spreading Chinese traditions—and modern thinking—which is more international in its character. Three models come to mind. The first is Ikebana International, an organization started and operated most effectively by our Japanese friends. One unifying theme of Ikebana is flower arrangement, but all other aspects of Japanese and Western culture receive attention. The second example is the English Speaking Union. Its effectiveness not only during the past two wars but between them recalls how very much political actions are swayed by cultural sympathies. The third well-known organization is L'Alliance Francaise. To belong to a local branch of this alliance, to study and speak French, and to share a common interest in things French, gives each member a certain prestige, whether he is aware of it or not.

Specifically then I propose that Taiwan, China, sponsor an organization which for want of a better name might temporarily be called the Celestial Pagoda Society, with these features:

1. Many branches in the United States and in other countries
2. Of order of 5,000 members in U.S.A.
3. Meetings several times a year
4. Active participation of all in study group or work shop
5. Annual dues of order of $4.00 per year

6. Use as active channel of communication between East and West (speakers; visitors; films; printed matter; advertisements; art exhibits; displays of furniture and other living arts; encouragement for travel; and arrangements when welcome for families to take in students from abroad).

The organization would best be centered in Taiwan, independent, but more or less closely linked with the Foreign Service there and with consuls located in Western countries. The required budget would probably be of the order of $100,000 a year, of which $60,000 would be thought of as Taiwan government subsidy and $40,000 as coming from dues. There would be local committees in many cities and towns in the Western world.

If the Conference wishes this kind of cultural interchange to come into being, it can so recommend, and leave it to our Chairman and influential Taiwan members to pass on this proposal to the Taiwan, China, government and to influential citizen groups there.

PROPOSAL 5: A SCIENCE, TECHNOLOGY AND PRODUCTIVITY SURVEY

My fifth and final proposal is a science, technology, and productivity survey on Taiwan to spot specific areas where small funds and simple means can win great dividends and make new jobs.

There have been many outstanding advances in recent years as a result of such productivity surveys. Those made by the Organization for European Economic Cooperation supply one good example. They have led to decisive improvements in Europe in blast furnace operation and in methods of road construction, to take two important instances. Surveys of lesser scope and scale have also been made with good results—for example, the survey of the United Arab Republic by Allison and Noyes a few months ago, and the Cleland and Daniels survey of Southeast Asia sponsored by the Asia Foundation. One would like to see something done for science and technology in Taiwan analogous to what the Joint Committee for Rural Reconstruction has done for agriculture on Taiwan.

Specifically, I would propose

1. *A two- or three-man productivity team, composed of men with experience like that of Alexander King*
2. *A two-month visit by such a team*
3. *Identification by this team of*
   - *a. Projects*
   - *b. Costs to start them*
   - *c. Ways to finance projects at beginning*
   - *d. Estimates of probable payoff*
4. *Nomination by this team of men to guide projects for first year*

If this Conference approves of this kind of survey, it might transmit its affirmative view through the Chairman to the government of Taiwan and the International Cooperation Administration or an appropriate foundation.

Taiwan and the Example of NATO

Over this week end the *Berkeley Gazette* carried on its front page the story of the appointment of William Nierenberg as the chief science adviser to the North Atlantic Treaty Organization in succession to Norman Ramsey and Frederick Seitz. He will have charge of the outstanding program of fellowships in science and technology which are cooperatively supported by the NATO countries. What has happened in the NATO community can happen in the smaller Taiwan-U.S.A. partnership. As instances of the impact of this 17-nation program, let me mention that it has more than doubled the number of Ph.D.s in science and technology under training from Turkey and from Greece and from Portugal. It has every prospect of eventually making a decisive contribution to the defense *and* the prosperity of the Free World.

The NATO program has been actively under way for a little over a year. It is much broader than a fellowship program. I well remember its beginning just three years ago this summer. Charts like those on which the present five proposals appear were discussed in the meeting room of Senator Henry M. Jackson of Washington. No one present there can forget his leadership in the program, nor the way he pushed it in the Conference of NATO Parliamentarians and in our national capitol, and secured pump priming funds for it from Shepard Stone and the far-sighted administration of the Ford Foundation, until it came into being. I mention Senator Jackson particularly because he has spoken to several of us of the great importance of what the present Conference is doing.

Leadership to achieve good results out of the present Conference

I mention the NATO program because what is finally recommended by this Conference can come to a fruition that is just as decisive as the NATO program. We have in Prof. George Taylor a Chairman of outstanding leadership. We have participants who are willing to work for an important goal. I look forward to reading in the newspapers of three years hence that the program which we finally recommend has been in successful operation for a year and a half, and that it is about to be doubled.

BIBLIOGRAPHY

The following bibliography is added for the use of any reader who wishes to follow up in more detail a few of the points touched upon in the text.

Ambassador's Report, Chester Bowles, Harper and Brothers, N.Y., 1954.

One chapter gives an impressive account of how one full-time dedicated Indian or American, devoting himself to a single village, can galvanize the community into a new attitude of hope and productive work for worthwhile goals.

China's Response to the West, S. Teng and J. K. Fairbank, Harvard University Press, 1955.

Includes State papers of responsible Chinese officials impressed by the advantages conferred on the West by science, divided whether to institute a scientific curriculum in China, and eventually failing to make the necessary changes.

Annual Reports of the Chief Scientific Adviser to the Secretary General of NATO, OTAN, Paris.

Account of the present status of the NATO Fellowship program and other programs.

Reports of the O. E. E. C. Productivity Council.

Way of functioning and achievements to date of this important organization.

The Island of Formosa, Past and Present, JAMES W. DAVIDSON, Macmillan and Co., London and New York, 1903.

Includes an account of the Sinification of Formosa by earlier waves of escaping mainlanders, particularly impressive because the author did not foresee even heavier tides of Chinese people and culture in the years following 1945. Davidson translates the May, 1895, declaration in the words "*literati* and people" but this has been changed in the author's conference report to "intellectuals and common people."

The United States and China, JOHN KING FAIRBANK, Harvard University Press, Cambridge, Mass., revised edition, 1958.

The political judgments about the future with which this book closes are much to be meditated upon.

The China Problem Reconsidered, CHESTER BOWLES, Foreign Affairs, April 1960.

Considerations on the future relation between China, Taiwan, and the United States.

The Fellowship Office of the U.S. National Research Council has much helpful information on the international exchange of scientists. Appreciation is expressed to Dr. M. H. Trytten of that office for the figures and guidance which he supplied.

Ikebana International, an organization whose way of work and effectiveness may be seen in its regular publication, under the same title, obtainable from C.P.O. Box 1262, Tokyo.

Ceylon Productivity Institute, described in Chemical and Engineering News Letter, Dec. 1959.

Nishina Memorial Institute, 31, Komagome-Kamifujimae-cho, Bunkyo-ku, Tokyo.

Increasing the Effectiveness of Western Science, Fondation Universitaire, Brussels, 1960.

This report, prepared by an outstanding group under NATO and Ford Foundation auspices, has much that is as relevant to Taiwan and the United States as to the strictly NATO community.

A Septet of Sibyls: Aids in the Search for Truth, J. A. WHEELER, American Scientist *44,* 360 (1956). Remarks on science as a part of culture and on the optimistic drive that is common to men of science and to heavy intellectuals in general.

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MONDAY AFTERNOON

COMMENT AND DISCUSSION

Chairman: TINGFU F. TSIANG
Rapporteur: HORST FRENZ

MR. FRENZ: Ladies and gentlemen, I share the feelings of the Chairman, and I, too, am inclined to sigh. I should like to be forgiven if I am going to speak only on a few points, mainly with reference to the humanities. There are a great many people here more competent than I to speak on the social sciences and the sciences. The three papers this morning outlined very eloquently the problems to be faced in the three areas of the humanities, the social sciences, and the sciences, and showed how much each area can contribute to intellectual cooperation between countries. For instance, each speaker pointed out the importance of the foreign scholar to one's own work and to one's own field, let us say to the history of a country, in helping to choose and to solve certain research problems or in participating in scientific investigation. In each case it was made clear that new vistas can be opened through the help and through the assistance of the scholar from abroad. Professor Wheeler emphasized and Professor Lasswell implied the concept of teamwork, a concept that we in the humanities still have to grapple with. Professor Mao spoke of the significance of translations from either Chinese into English or English into Chinese. Here is an area, an important area, for teamwork, at least for a small team of two persons. I believe very strongly that through careful cooperation of two people from two different cultures a good translation can evolve. I should like to say this about translations: it is not enough to translate works that have not been translated before, it is also important to re-do old translations. Old translations are not good enough for today. Every generation needs its own translations in order to recover anew the artistic expressions of the past.

Professor Mao began his remarks appropriately with the discussion of language, which often has been called a barrier to communication between two cultures. Linguistic investigations of recent times, as you know, have helped enormously in the teaching of foreign languages and here is a very concrete case of the usefulness of scientific research to find out more about a cultural medium. I see just in that study of language a very important link between the humanities and at least certain aspects of science. I am wondering somewhat about one remark that Professor Mao made that English might become the world language, and I very much hope that this will not go into the newspapers. In recent years, we have been developing among our students an intellectual climate—maybe I am too optimistic, but I think so—in which they seem to realize the importance of foreign languages. If they now find out that English will become the world language, they might change their minds very rapidly and say: Why should we learn languages? We won't have to worry about them any more.

I was very much interested in Professor Lasswell's remarks about the tension between overspecialization and interdisciplinary work. We have exactly the same problem in the humanities. We have realized in the last decade or so that we must bring all the disciplines in the humanities together again, philosophy, history, literature and the arts. I am inclined to believe from the little I know about the work of our Asian colleagues, particularly from what the Chinese scholars are doing, that they can be of tremendous help to us. Again and again, I am impressed to see how a professor of literature from an Asian country or from your own country is versed in philosophy, in religion, in the arts. In other words, he does not know the cleavage that we find quite often in this country where we are frequently overspecialized, not only to the point of one particular literature but even to the extreme that a person is just an expert in English Victorian literature.

One other point concerning Professor Mao's paper. He suggested that history is tremendously important for mutual world understanding, and it certainly is. Professor Moore yesterday pointed out that actually the study of philosophy may be the most significant means of finding channels to cultural understanding. At an Asian conference in Indiana two years ago, one person even dared to say literature was the most important way to bring about mutual understanding between nations. May I suggest that, instead of using this kind of a strange hierarchy, we think simply in terms of the humanities, that all of these disciplines provide us with an avenue to the understanding between people. If by humanities we mean the study of man as a unique creative being and if through the humanities we are able to comprehend man's most distinguished and most enduring achievements, such as intellectual, spiritual, aesthetic, and ethical ones, then we should try to convey to our students these great achievements not only of our own culture but also of other cultures. As far as possible, we should think of the whole area of the humanities rather than specifically of history or of philosophy. It is significant that in any exchange that may happen, and I hope will happen as a result of this Conference, we don't just think in terms of specialists, of those who are specialists, let's say, in Chinese literature, but also of many of our scholars who want to become familiar with certain phases of the outside world and who need some understanding of the foreign area which they might get through comparison of two cultures or two literatures or philosophies and possibly in other ways also. Particularly the Chinese scholar who has some familiarity with Western culture, whether in literature or philosophy or history, can be of special value to us in this country in showing us how to present the culture of China to our own students.

One of the great problems we in the humanities are facing was pointed out by Professor Wheeler—and I don't think he quite realized it, perhaps he did—when he talked about the "heavy intellectuals." I am afraid we are on the losing end to a certain extent, for the scientists are getting some of the heavy intellectuals that we would like to attract to the humanities. I don't have to point out the reasons for it. Some of them are obvious; some of them are certainly economic. It is a fact that some of our best undergraduate students whom we would like to enter our own field, are deciding to go into the sciences, or even the social sciences. This is one of the problems all of us in the humanities, whether in Taiwan or in this country, are faced with, and we have to do something about it. There is no use crying over it, but we simply have to get to work on this problem. Some of us, I am afraid, have stayed in the ivory tower too long. We will have to become split personalities, spending some time in the ivory tower and the rest of it in the market place recruiting the people we want.

Thank you very much—

SUMMARY OF MONDAY AFTERNOON'S DISCUSSION

Professor Horst Frenz, in commenting on the three morning papers, referred to the fact that each speaker had pointed out the importance of the foreign scholar to the speaker's own work and to his own field; that Wheeler and Lasswell had implied a concept of teamwork, a concept that the humanities still have to grapple with. The humanities might find teamwork appropriate in translation from Chinese to English, or vice versa. It was suggested that although language may be a barrier to communication between two cultures, it may very well be a bridge between the humanities and the sciences, through the study of linguistics, for example.

One of the great problems in the humanities is that of bringing the disciplines—philosophy, history, literature, the arts—together again, and in this sense the humanities have the same problem of the tension between overspecialization and interdisciplinary work that has been referred to in the social sciences. This has some relation to the point that we should not think of any hierarchy of disciplines, only of mutual understanding between different cultures. Language, history, or literature are not necessarily more valuable keys than the others which are available. Just as it is wise when speaking of another culture to present it as a whole rather than through history or philosophy alone, so we must use every intellectual tool we have at our disposal for analysis and interpretation.

The theme that no one discipline is the only road to the understanding of another culture was underscored by Professor Moore, who was afraid that he had given the impression that he thought philosophy was the only road. Dr. Frank made the point that we could well learn from the Chinese more respect for the scholar as a scholar rather than for the details of the project in which he happens to be engaged. We suffer from "projectitis," which means that those agencies which give money are more interested in the project than in the support of a scholar who has been identified as having promise.

Professor Emerson said that he had heard the humanists state that the humanities receive less attention and support than other fields. He was surprised that the humanists think the role of the humanities is to pass on the culture of past ages to the present, in contrast to the obligation of the natural sciences to contribute new knowledge to the future. He felt that creative work in the humanities—poetry and creative work in the esthetic arts as well as in such fields as historical investigation, philosophy, etc.—was comparable to research in the natural sciences, but he felt that the humanists were not in sympathy with this parallel.

Dr. Emerson suggested that young men are deterred to some extent from going into the humanities because young people are interested in progressive change; they want to be identified with something that is on the move, that is rapidly expanding, and that is demonstrating its importance in modern civilization. "Instead of developing antagonisms and feelings of sharp cleavage between these great fields of human inquiry and endeavor (humanities, social sciences, natural sciences) I think we should find common denominators, common viewpoints, common objectives, and common hopes that link . . . them . . . into a synthetic philosophy, if I may use the term, which is applicable throughout." We should emphasize the relationships between the fields and avoid sharp compartmentalization. Human personality is not merely intellectual, scientific, and logical, it is also emotional. The basis for this should be mutual respect for creative work in all fields of knowledge. This approach found support from Professor Creel who argued that the scientific method is actually used by all disciplines.

Dr. Ballis addressed himself to the matter of the inter-relationship between the disciplines, with illustrations from area studies, and the new relationship between the physical sciences and the social sciences involved in the nuclear age—such problems as the implications of atomic power for the development of cities, communication, etc.—stating that it is not so much the discipline or the field of knowledge that is significant as the problem to which we are trying to find a solution.

Dr. Laporte also addressed himself to the question of the relationship between the fields of knowledge, particularly the implied suggestion that the sciences are here only on sufferance since they are essentially non-intellectual. The sciences, however, can claim to be among the disciplines that provide a basis of understanding between peoples because they use symbols—mathematical symbols—which are very close in philosophical content to Chinese characters. These symbols can be used, devoid of sound, to represent ideas and operations by themselves. There is a great deal in common between the scientists of one country and of another, more, perhaps, than there is between the humanists and the social scientists. On the other hand, there is a trend in the sciences, which the speaker deplored, to underemphasize the humanities. In scientific education today it has become necessary to drop the studies of the growth of science, and there is a danger of turning out "engineers of science." So there is a real difference between the humanists and the scientists in that the scientists are paying little attention to the past.

Dr. Tsiang said that the Chinese historians have great respect for the evidence of primary sources for texts, and that is their strength. The weakness is that Chinese historiography is limited, first, to the compilation of documents; and second, to textual criticism. There is not a great deal of historical synthesis. Dr. Tsiang pointed out that the Chinese natural scientists have great advantages because their techniques are the same as those of scientists elsewhere, and they have very little to fear in the way of public criticism because their work is politically neutral. The Chinese scientists have to be very modest in their demands for laboratory equipment. In Taiwan, therefore, they have to take up fields and problems which do not require costly equipment and in which great results can be produced with modest expenditure.

Traditional China did not produce much in the way of the social sciences. It could be said that the Chinese body of knowledge was undifferentiated and that all the social science disciplines were included within it. But the strength of tradition was perhaps too strong for the further development of the disciplines.

Dr. Tsiang referred to the Joint Commission on Rural Reconstruction and suggested the creation of a parallel organization, a "Joint Commission for the Promotion of Democracy." There are many problems in the promotion of democracy in certain countries in Asia; some of them are technical, such as how to organize political parties, how to finance them, etc. In further remarks about the social sciences, Dr. Tsiang stated that the Chinese social scientists depend too much on the reading of books, and there is a reluctance to introduce a new discipline to the fields of the social sciences. "We must go into the field, we must study society as it actually exists."

Dr. Hu Shih commented on the fact that Professor Mao did the first translation in three hundred years of Euclid, and although today Professor Mao is one of the great classical scholars of China, he was originally a mathematician. Professor Liang, who read Professor Mao's paper, has translated more than half of the plays of Shakespeare.

Dr. Hu felt that Dr. Tsiang's suggestion for a joint commission to promote democracy was a little bit outside the scope of the Conference. He suggested a Sino-American commission to promote good first-class translations of Chinese classics into English and Western classics into Chinese. He referred to the project of Mr. P. C. Chen of Hongkong to translate the modern classics in the social sciences. Dr. Hu said that this was a very important project representing the best and latest developments in the social sciences, but this was only one project. What he had in mind was a joint commission to promote first class translations which should include not only the modern classics in the sciences of man but also the older classics in the social sciences and in the humanities. This would be a step toward the promotion of democracy. There should be a new translation, for example, of John Stuart Mill's classic *On Liberty* and of Mill's autobiography. There should be translations of Gibbon.

Mr. Shen (United States Educational Foundation) referred to the increasing emphasis on general education in American colleges and universities as well as in China. He felt that students of both countries have not really grasped the importance of the general courses in the college curriculum and do not take them as seriously as the courses in their fields of specialization. This calls for more thoughtful guidance in colleges. Dr. Taylor raised the question of the universalization of the disciplines and asked Professor Kuznets to comment on the question whether economics is a discipline which can develop to its fullest theoretical potentialities within one cultural setting. Is there any value whatsoever in the studying of the economic life of peoples of other cultures for the theoretical development of economics? Is there any question here about the future theoretical development of our disciplines that is at all relevant to intellectual cooperation, not just with Taiwan, but with anyone?

Professor Kuznets said that his own interpretation of the development of economics was very different from that of Professor Lasswell. During the last thirty years, economics has evolved a common body of data which will eventually force upon it a more universal type of analysis. In economics as a research discipline, there had been a tremendous development in the quantification of observation. It has been an extension of the measuring rod to the social aggregates. Professor Lasswell referred to some of the results of the increasing scope of management in economic affairs and the development of economic planning when he spoke about input-output measures of national income and linear programming.

Dr. Kuznets said there were two aspects of this development that should be kept in mind. First, the data formulation in this process has been attempted in such a way that it is presumably securable for a wide variety of social structures and for a wide variety of economies. There are wide variations between nonmarket economies and highly developed market organizations, but the measurements could still be fitted into parallel categories. The *United Nations Yearbook of National Accounting* attempted to measure the performance of the economic systems of something like sixty-five to seventy countries in more or less similar types of aggregates and components. The process of organizing comparable measures of the performance of different economic societies has been pushed forward at a very considerable rate, and what is lacking now is the analysis. Economists, therefore, particularly those concerned with economic growth, are shifting their work in two directions. One is towards much greater use of quantitative data, and the other towards a more comparative approach. That is, they try to get away as far as possible from concentrating on the data of one country. They do favor a comparison of results of a sufficiently wide range to see both the elements of similarity and the elements of difference in the deviation from a common pattern. This is a field in which the possibilities of international cooperation are considerable. This process has been greatly accelerated by the acceptance on the part of economists in this field of a common set of concepts subject to measurement. That is, there has been agreement on what are the significant data relating to results. In other words, one has to agree to use a similar system of concepts and a similar body of data so that results begin to be comparable. That was the first point of agreement.

Second, international cooperation begins to be pushed forward by the results which are beginning to show. For example, we now know much more about the past economic growth of a number of major economic industries in the world. The study of some of these comparative data has forced a degree of international cooperation. For example, it is only since World War II that we have begun to get data that are acceptable on the long-term economic growth of Japan. These data are comparable with similar data for the United States. This has led to a whole series of questions which would not have been raised before and which require further cooperation for their solution.

International intellectual cooperation has to begin with a disciplinary focus. One must have an agreement on the intellectual structure of a discipline before intellectual cooperation is possible. The basis of agreement may change, but one must start with a certain minimum degree of agreement.

Lasswell agreed that Kuznets had made explicit one of the major strategies in intellectual cooperation and had demonstrated its effectiveness in the field of economics. Economics has a more satisfactory balance than some other fields between the theoretical systems and analysis data. One of the hopes in the social sciences is that they might develop among people of diverse backgrounds an intellectual synthesis corresponding to the one that was characterized by Professor Kuznets. Those of us, for example, who are concerned primarily not with the economic system but with the power system, or those of us who are primarily concerned with fluctuations in the respect systems of society, have not yet achieved a parallel degree of intellectual agreement on the working categories which are serviceable for disciplined cross-cultural comparisons. This intellectual task is one which already has been greatly stimulated by the successful model provided by economics as an intellectual discipline and as a subculture in the general intellectual culture of our time.

Professor Kuznets' views, therefore, were not out of harmony with the views of those of us who are primarily concerned with other social sciences. We see, for example, in the development of the interviewing procedures that are now partly organized on a cross-cultural basis, some of the instruments that permit the development of data pertaining to the shifts in the degree of achievement of power combinations, respect combinations, and other value outcomes which are component parts of the social process considered as a whole. We find ourselves looking forward to the universalization of our contribution to the general discipline of society by taking advantage, as far as possible, of the kinds of intellectual activities and agreements of a working sort that have already been exemplified in the discipline of economics.

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TUESDAY MORNING

THE HUMANITIES AND INTELLECTUAL COOPERATION

Chairman: Shen Kang-peh
Rapporteur: Herrlee G. Creel

Mr. Creel: No previous conference that I have ever attended has been anything like so stimulating as this one. This is of course primarily due to the remarkable caliber of the group that has been brought together. And the papers maintain a standard of quality beyond that of any such gathering in which I have ever before taken part.

The papers are also rather staggering in number. They are not, of course, designated as belonging to the category of humanities, social sciences, and so forth. Furthermore some of them have come into my hands so recently that I have not really had time to digest their content. In any case it would be meaningless for me to catalog, or to summarize, papers that you have before you. You can all read better than I can. What I am going to do, therefore, is to discuss certain problems that have been suggested by the papers, and by our meetings so far, and refer to some of the papers in connection with this discussion. If I fail to mention some that I should, I hope you will forgive the omission and that the group will repair it by bringing up such papers in our general deliberation.

Yesterday morning Professor Lasswell pointed out that at one time in the nineteenth century, in European universities, social scientists were "second-class citizens." I think we must recognize that today, in the United States, humanists are "third-class citizens," coming behind the natural and then the social scientists. It is not my intention to weep any crocodile tears for the vanished preeminence of the humanities; to some extent we humanists have deserved our fate. Nor do I intend to declare that we humanists are the wronged custodians of an ineffable treasure called "values," even if I may think it is partly true. If I were a scientist I should get very tired of hearing humanists yell "values" every time the hot breath of reality reached the backs of their necks.

In fact, of course, one paper after another by our colleagues in the natural sciences emphasizes the need for more support for, and more attention to, the humanities; this is true of the papers by Professor Emerson, Dean Merritt, Professor Teng, and others. It is not in opposition to the sciences, either natural or social, that I would urge greater and more effective attention to the humanities. It is rather because I am convinced—and I believe that many scientists at least will agree with this—that more attention must be given to the humanities even for the sake of maximal progress in the sciences themselves, as well as in areas of human life of practical importance.

I was much interested in Professor Laporte's expression of concern, yesterday afternoon, that effective scientific education may be leaving out too much of the historical background of the scientific disciplines. I have heard other scientists voice the same apprehension. And my own fear is not only that the scientific picture of reality may come to be unduly lacking in depth, but that the great prestige of science may cause its method of dealing with reality to be transferred to other fields in which scientists themselves would not hold it to be applicable. For instance, the director of one of America's greatest institutions devoted to humanistic research said to me recently: "Of course, in the modern world, we have to look to the scientists to give us our values." In my opinion this is to demand of science more that it pretends, or should pretend, to give. Professor Treadgold's words concerning "scientism" are precisely to the point here.

While our conference is Sino-American, it is intended to bear upon the topic of intellectual cooperation in its world-wide ramifications. Nevertheless there is a peculiar appropriateness in the discussion of intellectual cooperation with China in the context of the humanities.

This is not, of course, to say that China has not made and will not make outstanding contributions in the field of science. It has and it will. The publications of George Sarton and, more recently, Joseph Needham, have shown that for long and important periods China was ahead of the rest of the world in science and technology. And the work of Chinese scientists today is increasingly impressive.

In spite of these facts it would be generally agreed that the Chinese genius has been even greater in the direction of what—without, I suspect, ever being completely sure what we mean by the term—we call the humanities. Among other things this means, I think, that they have had even more flair for the arts than for the sciences, and that they have been more concerned with man's life in society than with the attempt to analyze and subjugate man's environment.

It would take a bolder man than I am to try to define the humanities, or delimit them from the sciences. But I suggest that the scientific tendency is to emphasize generalization and theory. This can be found as far back as the Greeks. There is even a *reductio ad absurdum* of the theoretical tendency in Plato's *Republic,* where he lays down the proper method of studying astronomy. He laments that the paths of the stars show deviations and are in fact far from perfect, and concludes by saying that "in astronomy, as in geometry, we should employ problems, and let the heavens alone if we would approach the subject in the right way and so make the natural gift of reason to be of any real use."

The humanistic tendency, on the other hand, is to pay more attention to the particular. The humanist wishes to understand the individual phenomenon in its full context, and is reluctant and tentative in his acceptance of general theories. This has also been true of much of traditional Chinese thought. The great Italian Jesuit scholar, Matteo Ricci, complained that the Chinese of his day had "no conception of the rules of logic." But, in fact, many Chinese have been rather skeptical of the validity of the proofs offered by what is commonly known as "Aristotelian logic," and Western logicians of the twentieth century share some of that skepticism.

What we call "modern science" is of course the result of a constant interplay between what I have called the theoretical and the humanistic attitude. Without theory there could be no science. But theory that is not checked by periodic reference to phenomena degenerates into pseudo-science.

Nevertheless there would seem to be no question that in our contemporary world, science, conceived as predominantly theoretical science, is in the ascendant. What we call "Western" attitudes, based chiefly on the postulates of science, now dominate every continent. The humanities, once considered the essence of learning, have been pushed into a very subordinate role in most universities. Even history, technically considered a "no man's land" between the humanities and the social sciences, has been largely taken over by the latter, with the resultant publication of some highly theoretical history. It is not unnatural that in this situation China's traditional culture, principally humanistic in its genius, receives little attention.

The interesting and informative paper of Professor Shen Ye-tsen on the functioning of the Fulbright program with regard to Taiwan demonstrates this. He quotes the statement of its objective, which is "to strengthen the community of interest between the people of the United States and other free peoples by increasing awareness of each other's cultural, intellectual, social, political and economic life." But as an American, viewing the record, I cannot but feel that China's predominantly humanistic culture has been given somewhat short measure in this exchange. Of Fulbright appointments to and from Taiwan for the last three years, 45 per cent have been in "basic sciences," while only 13 per cent have been for "Oriental studies."

Our concentration on science to the exclusion of the humanities might be justified if it could be claimed that all of man's most pressing needs were being met, but I have never encountered a scientist who would make that claim. Science can manipulate the material world, and could no doubt destroy it, at will. But the world-wide reign of science, both natural and social, has coincided, either accidentally or for cause, with an almost world-wide despair of unprecedented proportions. It is reasonable, then, to ask whether the humanities, and China's humanistic culture, may not still have something to offer of use to mankind. I am convinced that, as President Hu so eloquently assured us at our opening session, they do.

One of the problems created by the eclipse of China's traditional culture is stated in the impressively thoughtful and candid paper of Professor Chang Fo-ch'uan. He pictures graphically the problem created, on the one hand, by brilliant but impatient Chinese students who turn to communism as a quick panacea for China's ills, and on the other by conservative intellectuals who feel that "Western democracy is entirely foreign" to China and that to espouse it would be to "admit that Western values are superior."

This raises several questions. One is: are the values of what we call "democracy" exclusively Western? Our democratic ideas stem mainly from the Enlightenment and the American and French revolutions. And Western historians are now coming, in increasing numbers, to recognize the important role of intellectual stimuli from China on the Enlightenment. We all know how the early Jesuit missionaries eulogized China as being a land having equality of opportunity such as did not exist in Europe. Of course, the Jesuits have been accused of distorting things for their own dark "Jesuitical" ends. But it is a curious fact that five centuries before the Jesuits, Muslim scholar after Muslim scholar spoke of China in much the same way, as the most peaceful and orderly of states and one in which the people enjoyed equal justice and happiness more than in any other.

Of course, that does not mean that China ever had a government of the kind that we today call "democratic." But the highest ideals of the best Chinese officials, and what we call "democratic values," were not nearly so different as they are sometimes represented. It is Confucius who said that the one essential of a government is that the people must have confidence in it. This is not the same thing as the mandate of a parliamentary government, but it is not without a certain resemblance to it.

The administrative organization of the typical modern Western state has far more in common with the traditional pattern of Chinese government than Western political scientists are accustomed to recognize. Textbooks in current use speak of the "invention" of the technique of competitive civil service examination in England in the nineteenth century, ignoring two millenia of civil service examinations in China. They describe this technique, and the whole apparatus of bureaucratic government, in a manner that would include the government of China in the second century B.C.

The antecedents of bureaucratic government in Europe are commonly traced back to the Emperor Frederick Second, who reigned from 1220 to 1250. In fact the type of government that Frederick elaborated was instituted by his grandfather, King Roger Second of Sicily, who reigned from 1130 to 1154. Roger's domain extended far beyond Sicily and has been called "the richest and most civilized state in Europe" of that time. King Roger had a passion for learning everything he could about every part of the world. To collaborate with him he invited to his court, with rich gifts, the most celebrated Muslim geographer of the time, al-Idrisi. They set a group of scholars to searching the voluminous Arabic geographical literature, and had great numbers of travellers brought to the court, where the king personally interrogated them. All information was carefully recorded and cross-checked. This huge research project went on for fifteen years; we still have the book that al-Idrisi wrote as its final report. It includes a good deal of information on China, of a standard of accuracy that is, in the circumstances, remarkably high.

In the light of this fact it is interesting that the technique of examination appears, for the first time in Europe at Roger's court in 1140. Its progress can be traced, on the basis of at least good circumstantial evidence, from China through the Arabic world. Although it had previously been unknown in Europe, it appeared in European universities a few decades later, with very significant similarities to the contemporary practice of examination in China. When Frederick Second established the University of Naples in 1224, as the first state university in Europe, it had six important resemblances to the institution that is commonly called the "Imperial University" in China.

In the book that al-Idrisi wrote for Roger Second, to record their researches on the state of the world, China is praised almost extravagantly for its efficient and equitable administration; no other government is lauded in the same terms. It is at least interesting, then, that we can find many similarities between China's government and that developed by Roger and by Frederick the Second, which was something new in Europe. The *Cambridge Medieval History* calls their administration "far in advance" of their age, a prelude to "the civilized monarchy of modern times."

Thus it can be pointed out, to those conservative Chinese of whom Professor Chang speaks, that to adopt a type of government like that of contemporary Britain or the United States is not necessarily to "admit that Western values are superior." For in fact our values, and our very machinery of government, owe more to Chinese inspiration than is commonly realized.

But we should not stop there. There is no reason to suppose that what *we* call "democratic government, model of 1960," is the ideal type of government for China. We don't even know that it could not be improved on for the United States. And there is every reason to hope that careful, intensive study of the governmental experience of the Chinese people might furnish suggestions of the greatest usefulness both for China and for other countries. As early as the first century B.C., China had a highly organized government utilizing civil service examination, regular merit rating of officials, elaborate statistical controls, careful procedures of budgeting, and a state university established for the express purpose of educating officials for government service. The contemporary Roman Empire can show nothing to match this. In subsequent centuries this administrative machinery was improved and elaborated. We are almost completely in the dark, however, as to most of the details of the manner in which these institutions arose in antiquity, and their subsequent development has had nothing like the study it deserves. While excellent work has been done by a few scholars on specific points, it is a simple fact that the remarkable development of governmental institutions in China has never been subjected to thorough, searching investigation, making use of modern techniques and insights. This comes close to being a scandal.

Surely this is a most obvious field for intellectual cooperation. A project designed to fill this lacuna might well be appropriate for the proposed research center in Taiwan. It would have to be carried on by highly qualified Chinese scholars. At the same time I believe that Western collaborators could make a useful contribution. The outsider can sometimes suggest points that might be overlooked by the most learned scholar, simply because the latter knows his subject too well. It is no accident that one of the most provocative studies of democracy in America was written by a Frenchman, de Tocqueville. Professor Kuo Ting-yee notes in his paper that Western scholars sometimes "bring out new and interesting problems, which is inspiring in historical research."

Such a study of China's political institutions might make it possible to devise a governmental system that would achieve the ends of democracy by means more closely in harmony with the traditions and inclinations of the Chinese people. And it would certainly enrich our knowledge of history, and broaden our grasp of political science.

It might be objected, I suppose, that in all this talk about government I am encroaching on the field of the social sciences, and poaching on the preserves to be dealt with this afternoon by my friends Professor Sutton and Professor Yang. If this objection were made I should refute it in two ways. In the first place, the Chinese have always regarded government as an art as well as a science; perhaps this is one reason why they have been, relatively speaking, rather successful in this field. Secondly, the kind of research on China's government of which I am speaking would fail of its objectives if it were to be limited to the purview of political science narrowly defined. It goes without saying that the collaboration of highly qualified political scientists, and the use of all the insights and techniques of their discipline, would be indispensable. But government in China cannot be divorced from many other things, including philosophy. Taoism may be abstruse, but one has to know a good deal about it to understand the early history of China's governmental institutions. To be fruitful the approach must be interdisciplinary—and it must, in my opinion, have a strong dash of humanistic flavor.

This is true in other fields as well. Our Western methods of categorizing knowledge and research often impede our understanding of China's culture. This was brought to my attention quite recently in connection with psychology. I would hazard the guess that the Chinese have given more attention to social psychology than any other people. I. A. Richards noted adumbrations of the ideas of Sigmund Freud in the book of *Mencius*, and I have heard a practicing psychiatrist comment to the same effect. Even more striking parallels to some of the insights of modern psychiatry can be found in Chinese works of more recent centuries. For years I have been trying to find a student in the Chinese field who would study psychology and then investigate the Chinese literature on psychology in the light of modern scientific knowledge. If you are scandalized that I stray so far from my proper field, I should perhaps mention that my first academic title was "assistant professor of psychology." Then, three months ago, a student came to my office in some despair. She had been studying psychology for some years, and wished to study Chinese in order to investigate the Chinese literature on personality problems. She had been unable, however, to find a psychologist who would undertake to direct a dissertation in this field. I told her that I quite understood the hesitation of the psychologists, and warned her of the difficulties of the study of Chinese. I agreed to accept her as a student, however, and told her that if she proved promising I would try to arrange with the Department of Psychology for joint sponsorship of a dissertation on some phase of the Chinese literature on psychology.

I am quite sure that such cooperation can be arranged without difficulty. But this illustrates the need for imaginative interdisciplinary approaches, and the danger that could exist for our study of Chinese culture—and perhaps of other humanistic fields as well—if we adhered too rigidly to our Western academic categories, which are predominantly scientifically oriented.

Study of the Chinese literature on psychology is another field that would lend itself to cooperation between highly qualified Chinese and Western scholars.

Such cooperation is in no way new, of course. I think that most Sinologists in this country would feel lost if they could not take their most difficult problems to their Chinese colleagues for advice. In return we try to be of what help we can to them, but speaking for myself I know that the balance of indebtedness weighs very heavily in my direction.

The exhaustive and illuminating paper of Dean Shen, our chairman today, describing cooperative activities concerned with the humanities now going on in Taiwan, was quite surprising to me. I was unaware of many of these undertakings. Yet while it is clear that an encouraging amount is being done, it is also plain that the need for further activities is even greater.

A happy example of cooperation is offered by the paper of Prof. Kuo Ting-yee, describing the extremely impressive work of the Institute of Modern History of the Academia Sinica. Through corresponding fellows abroad and assistance to Western students in Taiwan, its work, while financed by the Chinese government, has an international dimension. It also has cooperative relationships with the Far Eastern and Russian Institute of the University of Washington, and the Harvard-Yenching Institute.

The Far Eastern and Russian Institute, whose work is described by Professor Michael, and Harvard-Yenching Institute provide outstanding examples of long-established cooperation between Chinese and Western scholars. The paper of Prof. Yang Lien-sheng, who is a member both of the Harvard-Yenching Institute and of the Academia Sinica, offers wise principles for this kind of cooperation such as we should expect from one who has had long and successful experience of it. I should like to underline his suggestion that, in the center for the humanities and social sciences that we hope will be established in Taiwan, "modesty and flexibility" are desirable.

I find it impossible to summarize, in any satisfactory manner, the paper of Professor Treadgold, giving his reflections and proposals based upon his experience in Taiwan. It seems to me that he is talking about some of the same matters which I have, much less adequately, been discussing here. I hope we have all read his paper with care, and that his suggestions will be reflected in our conclusions.

Still another important example of actual cooperation now in progress is given in Professor Wilbur's paper describing the work of the Columbia University Seminar on Modern China. And I am especially impressed by the value of the Chinese Oral History Project, of which he and Professor Ho Lien are co-directors.

While it is not difficult to plan fruitful research projects, it is a deplorable fact that those who carry them out will have to work, in the Chinese field, without basic tools of reference that are taken for granted in other fields. Recently in doing some comparative work I was looking into Roman history. And I was rather shocked to find that, while I have spent my whole life studying China, I could locate information on most subjects on the Roman Empire more easily than on the contemporary Han dynasty.

The reference works proposed in the paper of Dr. T. L. Yuan are badly needed. Certainly we should have a better geographical dictionary. And for biography we are, it seems to me, in even worse case, except for the *Eminent Chinese of the Ch'ing Period* edited by Dr. Hummel. Recently I looked up a rather obscure early philosopher in Giles' *Chinese Biographical Dictionary*. It gave very little information, and as I recall every item except one was wrong. Most urgent of all is the need for a Chinese encyclopedia. In Chinese there are, of course, a great many excellent works of reference that, in their way and in certain fields, provide materials that are hardly available to scholars working on other countries. But there is not, in Chinese or any other language, any place where the layman or the specialist can "look up" information about China on a multitude of matters that may be rather simple, but can be very vexing if one does not know the answer.

The paper by Dr. Beal and Dr. Yuan proposes an index to periodical literature. For some reason mysterious to me it seems to be rather difficult to interest either scholars or institutions in the need for such indices. Yet they clearly—when, as far too seldom, they are available—eliminate duplicated and wasted work, facilitate the avoidance of error, and multiply the results obtained by a given amount of time and effort. Just the other day I found, quite by chance, a reference to an article that appeared in the *Journal of the American Oriental Society* in 1952. Looking it up I found that the article demonstrated that a statement I had just written in a paper was clearly mistaken. I am quite familiar with that journal, but I am not one of those fortunate people who remembers everything. People like me need indexes.

Not all, but much, of the preparation of the reference works we need might be carried on in a manner somewhat like that in which *Eminent Chinese of the Ch'ing Period* was produced. That project, supervised by Dr. Hummel, was made possible by cooperation between the Library of Congress, the American Council of Learned Societies, and the Rockefeller Foundation. Its purpose was both to produce a useful reference work—which it certainly did—and to give advanced training in research to young scholars in the field. How successful it was can be seen from the fact that so many of these scholars, Chinese, Japanese, and Western, have risen to eminence. Some of them are here with us today. This is a most promising field for fruitful cooperation. The difficulty of Chinese studies, which require an unusually long apprenticeship, makes such undertakings especially appropriate. I would suggest that any such project should include in its staff at least one mature, thoroughly competent Chinese scholar and one Westerner having the same qualifications.

The suggestion of Dr. Beal and Dr. Yuan that important books be reproduced by photo-offset, where possible, rather than by microfilm, has great merit. A book in the hand is worth many films on the spool.

There is much of interest in the report of Professor Ballis on the "Munich Institute for the Study of the USSR," which he proposes as offering lessons for the projected research institute in Taiwan. We would all agree, I am sure, with his insistence on the need for nonpolitical emphasis, and on the desirability of more scholarships to enable students from Taiwan to study abroad. But I am dubious about pushing the analogy too far. China is not Russia, nor Taiwan Munich. Recorded Chinese history is far older and richer than that of Russia. The Munich Institute is apparently concerned only with the Soviet Union, but it would be a great mistake for an institute in Taiwan to treat only of Communist China.

There is, again, a great difference between scholars who have been resident in Taiwan for ten years and Russian refugees from behind the Iron Curtain. No doubt a need was felt in Munich to "retool" older scholars "to do modern research," but the Taiwan situation is not comparable. To say that scholars there "have been out of touch" with scholarship for ten years does not accord with the facts. At the same time it would be highly desirable that more scholars from Taiwan be given the opportunity to visit Western countries, but quite as much for what we can learn from them as for the reverse.

Above all, I do not think that we should talk of Americans giving "leadership" in intellectual cooperation for "objectivity" or anything else. Cooperation is cooperation. But the word is used in the names of so many government agencies that it has almost become a piece of jargon. Too often we Americans think of cooperation as a process in which we give—dollars, ideas, and leadership—and in which other people are expected to take our ideas and our leadership. The success of this method has not been conspicuous, either in winning friends or in promoting genuine cooperation.

Cooperation is a two-way street. There must be mutual respect, and real give and real take on each side. We cannot say to the Chinese, "You take our political system, and we will take one of your pictures and hang it in a museum." If the Chinese and American peoples are to understand each other, we Americans must understand China's culture and be prepared to learn from it. Since the greatest achievements of the Chinese people have been in the realm of the humanities and of social relations, areas in which we are relatively weak, there is every reason why we should profit from such cultural interchange.

The humanities are not merely polite or pretty; they are of vital importance to human welfare. I suspect that they may even have more to contribute to the advancement of science than has commonly been supposed. The researches of Lee and Yang have been hailed as the prelude to a new era in man's understanding of the universe. They are physicists, of course—Chinese physicists. While I know nothing whatever of physics, it seems to me that their hypotheses, when reduced to layman's language that I can understand, are extraordinarily reminiscent of Taoist philosophy as it is found, for instance, in the book of *Chuang-tzu*. I do not mean, of course, that these Chinese physicists were directly inspired in their discoveries by Chinese philosophy. But I do suspect that the Chinese mode of thought may very well have acted as a catalyst, opening a window upon a different point of view.

The very success of science, with its abstract theoretical formulations, and of the West, with its habit of intellectual dominance, could come to be a limiting factor to the development of mankind. It has been pointed out before now that our world is becoming so much the same, physically, socially, and intellectually, that sources of cross-fertilization may soon be extinct. At this point I think the humanities, and China's humanistic culture, may have a very important role to play. An eminent physicist told me recently that the work of Yang and Lee made him very uneasy. "It seems," he said, "to threaten the whole basis of our conception of things." I do not think that that is wholly bad.

Prof. Mao Tzu-shui observed, yesterday morning, that "philosophy teaches the uncertainty of knowledge." I am not sure that Plato would have said this, though I am quite ready to agree. Certainly the factor of cosmic doubt is one of the great contributions of Chinese philosophy. This, and the insistence upon the value of the ungeneralized particular, and of humanity as humanity, are all emphases that are made both by Chinese thought and by what we call "the humanities." They still have a useful role to play.

SUMMARY OF TUESDAY MORNING'S DISCUSSION

MR. EMERSON: I should like to suggest that the sciences and the humanities are somewhat closer than Professor Creel has said, especially having in view the importance to science of the particular as contrasted with the general, as well as the need for theoretical constructs in the humanities.

MR. MOORE: Are we interfering with the possibility of real understanding of China by studying various aspects of her culture one by one?

MR. CREEL: We may be making a mistake by studying China simply in terms of Western categories; for example, in examining Chinese philosophy simply to try to find what is similar to Western logic, epistemology, ethics, and esthetics. I believe Professor Kuznets said that "one must agree upon the intellectual structure of a discipline before one can have international cooperation"; if we would insist on defining those structures in terms based exclusively on the West, we would prejudice real cooperation in advance.

MR. LASSWELL: I should find it hard to draw the line between the so-called sciences and the so-called humanities. When Niels Bohr defines science as "that human activity which is concerned with extending the range of our experience and reducing it to order," he might be speaking of humanities in the broad sense as well as of the sciences in the narrow sense.

Mr. Li Chi: What is most needed is the introduction of scientific method to the study of the humanities in China. The rich store of knowledge and human experience to which my friend Professor Creel has referred has so far not been adequately explored owing to deficiency in method.

Mr. Hu Shih: When the word "science" was first translated into Chinese, the form used was *ke chih*; the form now used is *ke hsüeh*. *Ke Chih* means the investigation of things in order to extend knowledge—the idea of the Bohr definition. Thus the sciences and the humanities are both included in the Academia Sinica.

Mr. Wilbur: As Dr. Hu has requested me to do so, I am glad to report that the Columbia Biographical Dictionary project, continuing Dr. Arthur Hummel's *Eminent Chinese of the Ch'ing Period*, will be complete in about three years. (Professor Mote added that he hoped a dictionary on the Ming period would soon be started.)

Mr. Laves: We need to begin to consider concrete proposals within the limits of what funds might be made available. We are considering projects of cooperation between individuals and universities; perhaps we should also consider governments—the general heading of cultural diplomacy. We scholars are concerned with strengthening intellectual cooperation in part because we can thereby strengthen the Free World community. Perhaps, borrowing from the Communist propaganda tactics, we ought to involve the coming leaders of all countries—not merely Taiwan and the U.S.A.—upon whom will really rest the responsibility for the struggle which lies before us.

Mr. Treadgold: We have been assuming a difference between Chinese and Western traditions, but I wonder, in the light of many conversations I had in Taiwan wherein young Chinese indicated indifference to their own tradition but passionate interest in the science and government of the West, whether we may not have misconceived the difference. I hope specific channels may be established whereby a dialogue between the intellectuals of the two countries can result in a frank and free exchange on these fundamental matters.

Mr. Chang Fo-chuan: In China the humanities have fallen to a low estate, though this is not to suggest that the sciences receive any more aid than they need. Yet in the humanities, Chinese have written splendid books and articles which could only have been written as a result of contact with Western scholarship. Closer contacts between American and Chinese scholars working on allied subjects are, however, essential. Interpreters may be needed; introductions ought to be better organized.

Mr. Thompson: We ought also to consider the creative and interpretive arts, which involve not merely the study of the past but also creation in the present. Exchange of persons, provision of musical instruments and a concert hall in Taipei, exchange of art exhibits are needed if Free China, for political as well as cultural reasons, is to present to the world a face other than that of "fortress Formosa." Study grants are needed for any individuals who are going to devote time to research or creative work, for the ordinary Chinese professor's time is fully taken up earning a living.

MR. LIU CHUNG-HUNG: I am teaching the only course on American history in all Taiwan, and for American studies there, cooperation from Americans is obviously necessary.

MR. MICHAEL: I agree with Professor Laves that we need to devote serious attention to the problem of intellectuals, especially in Asia, and to that end we need to study more thoroughly what the role of the intellectual in modern society is.

MR. T. L. YUAN: I heartily support what Professor Thompson has said and urge that we also plan for training much-needed museum workers and librarians.

MR. TAYLOR: We have been speaking of ways to achieve the full use of the human resources of the Free World, of which Free China is an extremely important part. To do this we need strong centers of research and training, among them, perhaps, a new one in Taiwan in which the whole "intellectual armory," as Professor Lasswell puts it, of the Free World, can have as much free play as it does in New York or Boston or Seattle.

TUESDAY AFTERNOON

THE SOCIAL SCIENCES

Chairman: JOSEPH L. SUTTON
Rapporteur: YANG LIEN-SHENG

MR. YANG: Mr. Chairman, ladies, and gentlemen: to begin with, I owe you an apology for daring to accept the assignment to serve as rapporteur for this session. Whether I am a heavy intellectual or a light one, I am not in a position to say, but I am pretty sure I am not a heavy social scientist. All I can claim is that I was a half-baked economist, and unfortunately the baking took place not recently, but some twenty-five years ago, when I was in college. I got my A.B. in economics. Although I have tried to learn more in economics, I am afraid my knowledge in this eminent field is not far beyond a one-volume textbook like that of Paul Samuelson. Actually I felt flattered when I saw my name referred to as an economist in the *Economic History Review*, the reference being made to my little volume on the history of money and credit in China. In the eyes of most of my Western colleagues I am a Sinologist; that means a jack-of-all-trades in Chinese studies, especially history and philology. But I may have a better qualification; that is, through my study of Chinese political, social, and economic institutions I have been exposed to some extent to the concepts and methodology of specialists in the social sciences. I hope to illustrate this in a few minutes.

As an intellectual, I am willing to be counted as an adherent to the cult of interdisciplinary study, and I share the doubts that have been expressed on the overcompartmentalization of learning. After all, most, if not all, of the intellectuals are interested in one subject; namely, the phenomenon of man. Also I feel that, as intellectuals, each and every one of us should feel free to be proud of his field of study. As we say in Chinese, *ko yu ch'ien ch'iu*, or "each one has his millennium." Each one may have his millennium, or universe. At this Conference, the different universes of so many intellectuals happen to meet or to be tangent to one another, I hope this meeting of minds will prove fruitful.

To illustrate what I may have learned from social sciences, let me take the concept of spending, in particular government spending, which as a policy has a modernistic tone. But it was not entirely new in the West, and not so in China either. Economic justification of spending, though an uncommon idea, can be traced back to works by ancient Chinese philosophers, notably the *Hsün-tzu* of the third century B.C. and the *Kuan tzu* of about the same time. Actually passages related to this idea tended to be misunderstood by earlier scholars, most of whom found lavishness immoral but failed to see that spending could help create jobs. In Chinese history, we encounter a policy known as *i-kung tai-chen* literally, "using public works to substitute relief" in times of famine. This policy should also be understood in the vein of economic justification of spending. I do not claim to be the first one to find out all this, but my little knowledge of Keynesian economics may have helped open my eyes to the relevant materials in Chinese and present them together in one article.

The second illustration is in anthropology. I was greatly impressed when I read the book *Configurations of Cultural Growth* by Prof. A. L. Kroeber, dean of American anthropology. I believe it is possible to apply the technique to the study of the famous dynastic cycles in Chinese history and to talk about dynastic configurations. Some of the findings of Professor Kroeber have obvious counterparts in China. For instance, his finding that geniuses tend to come in clusters. This has long been observed by the Chinese, as illustrated in the phrase *jen-ts'ai pei-ch'u* or *jen-ts'ai ping ch'u*.

A third illustration may be taken from the works of Professor Lasswell, who is here with us. For instance, his categories for the analysis of group action in the political sphere seem to me particularly interesting. They include the manipulation of symbols, the control of goods, and the control of the means of violence. These categories can easily remind a Chinese scholar of the *liu pu*, the six boards or six ministries, of the traditional Chinese government. Obviously, the Board of War and the Board of Punishments correspond to the control of the means of violence. The Board of Revenue and the Board of Public Works correspond to the control of goods. The Board of Rites is concerned naturally with the manipulation of symbols. The Board of Personnel is somewhat different, but since the personnel refers largely to civil officials, it is closer to the manipulation of symbols than either of the other two. Thus the traditional construction seems to receive a new light. And the two to one ratio between the six boards and the three categories is also rather neat.

So even a very superficial knowledge in the social sciences may help to stimulate a Sinologist, and, I believe, even a very superficial knowledge of Chinese culture and society may prove stimulating to the social scientists and humanists as well. Professor Creel, in his speech, mentioned the competitive civil service examination. Another less well-known example of Chinese influence is the institution of *Ch'ang p'ing ts'ang*, or ever-normal granary. Henry Wallace's agricultural program incorporated this measure from China. This was noted and verified with Wallace himself by Prof. Derk Bodde. Wallace got the idea from the Sung statesman Wang An-shih. The institution of the ever-normal granary, however, was much older than Wang.

For this Conference we have over a dozen learned papers in the social sciences. I shall make no attempt to summarize these papers because they contain so many good points. I hope the social scientists will speak for themselves on a wide range of topics or projects. For instance, we may comment on what we visualize as a center for humanities and social sciences in Taiwan, or what kind of translations should be made, or on such subjects as exchange of personnel, exchange of materials, documents, etc., or on technique like the university seminar mentioned in Professor Wilbur's paper, or the inter-cultural seminar mentioned in the paper on comparative law by Professor von Mehren. Many points can be endorsed and re-endorsed. For instance, I hope we all agree with Professor Sutton that it is worthwhile to test whatever theories or hypotheses the social scientists may have against the Chinese experience. After all, China has been a united empire for thousands of years, an empire with a tremendous population. A study of her experience in the past as well as that of the present, should have something to contribute to the knowledge of man.

Another point I wish to underline is raised in the paper by Professor Laves, namely, the role of government in promoting intellectual collaboration and cooperation. I would extend it to include any dominant or influential group or organization in society. This leads us to the problem of sponsored research, whether the sponsorship comes from the government, industries, or foundations. Some people have already expressed concern about an erosion in the university's control of the university's intellectual activity. My personal view is that as long as the initiatives are retained by the intellectuals, sponsorship will do more good than harm. This can be illustrated in this present Conference. Without the NDEA help we probably wouldn't be here. Also I like to point out that in China the role of the government is likely to be more important. Major institutions, *e.g.*, the Taiwan University and Normal University, are national. Academia Sinica is also a national institution, although it no longer has the word "national" in its title. Naturally, we have great hopes in the governments as well as in the foundations, industries, and other organizations.

To conclude my brief remarks with a merry note, I wish I were a priest, standing here and making the announcement, "ladies and gentlemen, we are gathered here to join this man and this woman in holy matrimony." No, I should perhaps say, three men and three women, because we represent three groups of disciplines from the two countries. Also the marriage may have taken place already some time ago. But suppose we are merely here to reconfirm a group marriage of three couples, let's have some competitive spirit, and see which of these three couples in a short run will give birth to the first child, and in the long run whose children are going to be the most brilliant.

SUMMARY OF TUESDAY AFTERNOON'S DISCUSSION

CHAIRMAN SUTTON: Contacts which social scientists in America have with cultures other than Western cultures are by no means adequate to the task, as is reflected in the many Western-authored textbooks being used in Asia itself.

MR. KUZNETS: For intellectual cooperation, we must have an interest in common problems, and I am hopeful our Taiwan colleagues will be outspoken about those problems for which they would like to enlist the help and interest of Americans. I myself would like to study the growth of the economy on Taiwan.

Mr. Shih Chien-sheng: I am afraid Professor Liu, in his paper, is too optimistic about the usefulness of statistical data available for Taiwan's economic growth.

Mr. Peng: I urge attention to cooperation in the field of domestic and international legal studies.

Mr. Chen Chi-lu: We have a fine Japanese library on Southeast Asia which is unfortunately now stored in a warehouse, and it has much material on the economics of those lands. I should also like to urge anthropologists to consider making their field studies on Taiwan.

Mr. Liu Ta-chung: I strongly support Professor Kuznets' suggestion that a study be made of the growth of the economy in Taiwan. I believe Dean Shih may be too modest about the value of the data available. I have studied the statistics for 1954 and 1955; JCRR has collected agricultural data of an accuracy incomparable with any other such data in Asia; and Taiwan is the first Asian land to construct a set of national income accounts on the pattern suggested by the U.N. Secretariat in Asia.

Mr. Eckstein: I think most of my Chinese friends will agree that defense expenditures absorb such a large proportion of the national resources in Taiwan that there is not enough left to raise academic salaries from their present fantastically low level or to improve library resources. What support has been available has been mainly for sciences, and the remainder constitutes only a tiny sum. Another problem is that of the students who leave Taiwan in large numbers, seldom to return; the result is that the flower of the young Chinese intelligentsia is to a large extent in the United States, and there is a serious lack of academic *Nachwuchs*, young people prepared to replace the older scholars who have come from the mainland.

Two categories of proposals have been made: one involving the creation of institutional mechanisms for intellectual cooperation, the other involving specific projects. Under the former we have exchange of persons (students, faculty, and visiting lecturers); translations; and a center to focus intellectual activity. I believe the proposal for a center, for which one of the models would be the Tokyo International House, which would provide library facilities, serve as a center for seminar discussions, etc., should be carried forward.

Finally, I should like to support the suggestion of Professor Kuznets and Professor Liu that a study of Taiwan's economic growth be undertaken.

Mr. Li Choh-ming: I agree that such a center would be vitally important, even from an American standpoint, since it might provide the means for American social scientists to obtain training, including language training, needed to do research on China; arrange introductions; furnish office space; etc. One vital problem is the low supply curve for social scientists in Taiwan; and the improvement of library facilities, making available up-to-date publications in the social sciences to promising young students, would certainly be an aid to attracting young people into these fields.

Mr. Lasswell: One of the problems needing study, given the fact that in the years immediately ahead we expect to continue in a fortress society, is the appropriate degree of participation by members of a community in the collective process of decision making. Or, setting aside the normative term "appropriate," we can ask what the factors are in a situation that increase the degrees of participation to such and such a level in regard to such and such phases of decision making.

All of us are impressed by the importance of "de-parochializing" ourselves as far as possible. It is quite clear that all men are born, if not equal, at least rather equal parochially. One implication has been that one de-parochializes by a policy of dual parochialization; that is, you get parochial in two cultures. Perhaps we can not only encourage dual parochialization but also some degree of common parochialization in this small world of ours.

MR. HSU DAU-LIN: I speak of the needs for the behavioral scientist. We have had many eminent scientists going to Taiwan and working there with great success; but I think this is somewhat like sending a few doctors to some place to cure specific diseases. I propose to send a public health man to study what kinds of diseases exist there, and to find out how to make the patients welcome the doctors. One of the needs is to do more translation and publication in Chinese of basic social scientific works.

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WEDNESDAY MORNING

THE NATURAL SCIENCES

Chairman: LYNNE L. MERRITT
Rapporteur: CHIEN SHIH-LIANG

PRESIDENT CHIEN: Mr. Chairman, ladies, and gentlemen: I take great pleasure in being asked to make a statement on the problems and proposals in the papers submitted by my eminent colleagues on the natural sciences. Professor Alfred E. Emerson of the University of Chicago pointed out in his paper on "Sino-American Intellectual Cooperation Among Natural Scientists," that the difficulties that many highly qualified scientists are facing in the most advanced countries are: (1) lack of time for research due to other duties such as teaching, public service, and administration; (2) inhibitions produced by interference with freedom of inquiry because of religious, political, social, or certain types of scientific prejudices; (3) lack of research facilities, laboratories, and equipment; (4) lack of adequate reference libraries; and (5) lack of financial remuneration commensurate with their training, skills, and service to society. With the exception of the second point; namely, "the inhibitions produced by interference with freedom of inquiry because of religious, political, social, or certain types of scientific prejudices," all the other difficulties are also felt by the natural scientists of my country, and perhaps to an even greater degree.

In the papers submitted by my colleagues, Dr. Ling Chih-bing of the Academia Sinica on mathematics, Dean Juan Veichow of the National Taiwan University on geology, and Dr. Li Hsien-wen of the Academia Sinica on biology, and the paper submitted by my humble self on chemistry, we all agree that the main problems in education and research in the field of natural sciences in our country are: (1) the shortage of teaching and research personnel and (2) the lack of physical facilities. I shall elaborate a little more on the first point.

The shortage of teaching and research personnel is due partly to the rapid expansion of education in Taiwan during the last 15 years and partly to the fact that while many of the graduates from our colleges and universities came to this country for advanced training, very few of them returned upon completion of their graduate studies. A comparison of the number of students enrolled in the College of Science in 1945 with that in 1960 will make the point clear. At the end of 1945 there was only one university in Taiwan, namely, the National Taiwan University, with an enrollment of 585 undergraduate students. Of these, less than a hundred were in the College of Science. Now we have 14 colleges and universities with a total enrollment of more than twenty-five thousand undergraduate and graduate students (25,485). Of these, 2,822 are in the field of natural sciences. Thus, in a short period of less than 15 years, the increase in the number of students studying natural science is nearly thirty times.

This trend, I believe, will continue in the years to come. Besides the training of undergraduate and graduate students in their own fields, the faculty members of the College of Science also have to teach thousands of students in other departments who need some knowledge of mathematics, physics, chemistry, or biology in order to lay a good foundation in engineering, agriculture, medicine, or general education. An example from the National Taiwan University, which has a total enrollment of a little more than seven thousand, with nearly one thousand in the college of science, will serve to illustrate this point. In addition to teaching students of their own departments, the faculty members of the Mathematics Department have to offer each year calculus and differential equations to nearly 1,900 students from other departments. We find the same situation in physics, chemistry, and biology. More than one thousand students take courses in general physics. Nearly 1,900 students take courses in general chemistry, analytical chemistry, and organic chemistry. About eight hundred students take elementary courses in zoology and botany.

Such a heavy teaching load naturally leaves little time for the professors to do research work. This, coupled with the low scale of salaries, makes it extremely difficult for colleges and universities to recruit new faculty members and, to a lesser extent, to retain the old ones. This also accounts, in part, for the fact that very few of our graduates would like to return to their own country after they have finished their graduate studies in American universities.

As to the difficulties caused by the shortage in equipment, in books and periodicals, and in laboratory and library spaces, there needs no elucidation.

Ladies and Gentlemen, I am afraid that up to this moment, I have painted too dark a picture to you. Now I shall report to you something on the rosy side. In spite of all these difficulties I have just mentioned, some fairly good research work is being done by our scholars in certain disciplines of natural sciences. Chemistry, if I understand correctly, is a field in which research work has been most actively carried out, although investigations are limited to problems in which expensive instruments are not involved. In the fields of mathematics, geology, botany, and zoology, active research work is also in progress. Physics, however, is the one field in which there has been comparatively little achievement in research. It is my humble opinion that the facility for research activities in a particular field is extremely essential to the attraction of promising young scholars. The fact that three of our chemistry graduates who recently received their Ph.D. degrees from American universities have returned to Taiwan, while none of our physics graduates has come back, is sufficient to substantiate this point.

Now a few words about the Sino-American intellectual cooperation in the field of natural science in the past. Before 1954, very little had been undertaken along this line. Only a small number of Chinese natural scientists were sent to the United States for further studies during the years 1949-53. One or two fellowships were awarded each year by the China Foundation to the natural science scholars on the faculties of Chinese colleges and universities. Fellowships were also occasionally awarded by the ICA/MSMC. Closer cooperation, however, did not begin until 1954. In that year the ICA/MSMC awarded grants to several colleges and universities to improve their physical facilities for teaching science to undergraduate students. The award of these grants has been continued for four years.

Since then Sino-American cooperation in the field of natural sciences has expanded in such a way as to include: (1) the invitation of American visiting professors and (2) the grant of research subsidies to faculty members and the award of fellowships and scholarships to graduate students. The first activity was started by the China Foundation Visiting Professorship Program. National Taiwan University had the honor of inviting Dr. Wu Ta-you, who is with us today, as its first China Foundation Visiting Professor. Dr. Wu taught at our Physics Department in the year 1956-57. This was followed in 1958 by the "Exchange Program" of the U.S. Educational ,Foundation in the Republic of China (better known as the Fulbright Program). For the details of the Fulbright Program, I refer you to the paper written by Dr. Shen Ye-tsen, Executive Secretary of the Foundation.

The second activity, namely, the award of research subsidies, fellowships, and scholarships was started in the same year by The Asia Foundation. In accordance with the agreement signed by The Asia Foundation and the National Taiwan University, research grants were given to chemistry professors in the graduate school and fellowships were awarded to promising chemistry graduate students. For a two-year period which is about to expire, the grant amounts to $10,000. Much good has been done to the research work both on the part of the faculty and on the part of the graduate students.

In 1959, the "National Council on Science Development" was established in our country with Dr. Hu Shih as its chairman. It awards research subsidies to scholars, including natural scientists, and through the help of the ICA/MSMC, makes grants for the procurement of books, equipment, and supplies, and the construction of research laboratories and hostels for visiting professors. Starting from this year, the Council awards national research professorships to distinguished scholars in Taiwan and visiting professorships to scholars from abroad. Two-thirds of the money for the establishment of the research professorship is donated by the China Foundation, the other one-third by the Asia Foundation.

Now I shall describe briefly a few inter-university cooperative programs in the fields of engineering, agriculture, and medicine which may point the way to future Sino-American intellectual cooperation in the natural sciences.

One of the most successful cooperative projects is the one between Purdue University and the Taiwan Provincial Cheng Kung University. Under this program Purdue University provided a number of American professors to station at Cheng Kung University for consultation and advice in connection with improvement of engineering education, and Cheng Kung University sent a number of their faculty members for one year of training and observation in the United States. The whole project is financed by ICA. Up to the present, more than one million U.S. dollars and about thirty million Taiwan dollars have been provided by ICA for the improvement of the physical facilities of Cheng Kung University.

Not long ago, the College of Agriculture of National Taiwan University concluded a three-year collaboration with the Agriculture College of the University of California. The latter undertook to provide technical assistance to our College of Agriculture in its teaching, research, and extension programs. During the three years, it sent over nine of its faculty members, for longer or shorter periods, as advisers and took twelve of our members over for advanced studies and observation trips. This collaboration project involved a cost of nearly 270,000 U.S. dollars and about four million dollars of Taiwan currency—all provided by ICA as part of its program.

In the same period, JCRR (Joint Commission on Rural Reconstruction) has made generous grants (of 280,000 U.S. dollars and almost sixteen million Taiwan dollars) to enable our College of Agriculture to expand its physical plant and to strengthen its teaching and research facilities.

I will next speak about the advances made in recent years by our Medical College and our Hospital through inter-university cooperation. To fully appreciate the advances achieved, one should turn to review the many reports made by experts on the pitiable plight of clinical medicine existing in Taiwan as late as 1952. From that year on, thanks to the generous aid of U.S. government agencies and American medical organizations, and thanks to the initiative and determination of my colleagues in the Medical College and the Hospital, noticeable improvements have been made from year to year. Through the cooperation of ICA, many eminent persons in the medical field have been sent over from the United States to act as advisers and consultants, giving us the benefit of their learning and their experience. Their advices have been followed and implemented with concrete results. One striking example is the adoption of the new "Block System" recommended by Dr. W. C. Davison, Dean of the Medical College of Duke University. It has greatly improved the quality of our clinical teaching. A large number of our faculty and staff members have been sent, mostly through grants made by ICA, to the United States for advanced studies and observations. They have returned and shown, by their work, equally concrete results. The improvements thus made in medical teaching and in clinical services are clearly evident for those who have visited our Medical College and Hospital in the early 1950's.

Now I shall speak about the proposals. About a dozen of the papers contributed by participants contain concrete suggestions for steps to be taken to give further impetus to intellectual cooperation in the natural sciences. Since, however, the discussion of this area was scheduled third, following those devoted to the humanities and the social sciences, it will be found that, in essence, the suggestions made by the natural scientists contain little that has not already been discussed in the earlier sessions. This may be taken as additional evidence that in the fundamentals of intellectual cooperation, the differences among the three areas are less deep-rooted than are the things they have in common.

We may, therefore, use as a framework for summarizing the proposals in the natural sciences the set of categories suggested yesterday afternoon by Professor Eckstein, namely:

(a) exchange of persons
(b) translations
(c) research or study centers
(d) inter-university cooperation

In the first category, that of exchange of persons, there is, indeed, a problem which is probably more acute in the natural sciences than in the other areas, namely, that created by the fact that many highly-trained scholars do not find enough inducements to bring them back to Taiwan after they have completed doctoral or post-doctoral studies abroad. This is in part because their services are in such great demand in the United States, but it is also, in an important sense, a measure of the great need that exists in Taiwan for the creation of a scientific climate in which the scholarly aspiration of these people could find realization. A truly successful program of exchange of persons in the natural sciences will therefore only be possible if supporting steps are also taken.

Another difference between the natural sciences and the other areas is that, whereas, in the latter, some new center or centers of research and study may be needed, such centers already exist in most of the natural science fields, and what is particularly needed, therefore, is to strengthen these rather than to establish new ones. Here, again, one of the characteristic features of the natural sciences appears—they cost a lot of money, especially for the procurement of equipment. It is, therefore, unfortunately true that, in spite of the governmental policy of promoting science, the provision for it has up to now been, perhaps, less adequate than some of the fields which consider themselves less favored.

Some of the papers call attention to the fact that in certain fields of science—botany, geology, some chemical and medical areas—there are objects of study which are unique to Taiwan in the same way that Taiwan's economic growth is unique to Taiwan. These subjects must, of course, receive special attention. The general problem, however, is the more fundamental, namely, of strengthening the existing universities and research institutes so that they can achieve their full potential of scientific creativity.

Attention should also be directed to the proposals that Professor Wheeler made in his introductory speech. When concrete measures are discussed, these will certainly deserve careful consideration.

SUMMARY OF WEDNESDAY MORNING'S DISCUSSION

Mr. Sun: Despite the fact that China has grasped the importance of natural science and has produced highly intelligent students in the field of science, she still suffers from certain deficiencies: there is still not enough devotion to the scientific spirit so that all students of science are willing to get their hands dirty for the sake of truth; there are still not enough trained personnel; there is still not enough exercise of ingenuity. Finally, scientists can use the organizational know-how of the social scientists if the latter are willing to help.

Mr. Laporte: Efforts need to be concentrated on a narrow front if success is to be achieved. As has been true in Japan, in China the prestige of theoretical physics (because of the success of Dr. Yang and Dr. Lee) is likely to result in a lack of interest in experimental physics. Here concentrated efforts are needed, and I suggest a careful choice of one aspect of it: for example, microwave spectroscopy, high pressure work, etc. A relatively small expenditure could in this manner achieve great results.

Mr. Emerson: In the past, vital results have been achieved with little equipment: for example, Prof. Karl von Frisch's studies of bees. It is reported that in the field of neurology there has been "a negative correlation between equipment and laboratories and the work that has been coming out." In science, problems should be chosen for which Taiwan offers unique geographical advantages, such as work on local fauna and flora. Moreover, it may be that the Chinese feeling for the unity and the wholeness of life would facilitate the study of problems on which many disciplines—scientific and nonscientific—could be brought to bear. I have in mind, particularly, the population problem, "the great problem of the age"; to solve it we must understand cultural, religious, and moral attitudes as well as physiological mechanisms. Work on this problem on the island of Taiwan might have tremendous implications for India and all of Asia. (Professor Creel spoke in warm support of these remarks.) (Professor Meinwald supported Professor Laporte's comments on the need for concentration on a specific area or areas and suggested that a small outlay would accomplish much in organic chemistry.)

Mr. Juan Veichow: In biology and geology, accumulation of data from every corner of the earth is essential, and a particular region or province—such as Taiwan—may yield information of wide importance to these fields. Newly developed fields, such as geophysics, geochemistry, and oceanography, may also be relevant to this point.

Mr. Hewitt: Even in the United States, the level of mathematics in the smaller institutions is twenty-five or thirty years behind the times. If one is out of touch with a few large centers, one simply does not know what is going on. I suggest an increased program of sending talented young men to study at such large American centers, including both graduate students and young faculty. There is no doubt that Chinese mathematicians have achieved great eminence, and a little effort is surely worthwhile to give some of the younger men a chance to become acquainted with the most recent developments in this country.

MR. YEN: The program of cooperation in engineering between Purdue University and our own Taiwan Provincial Cheng Kung University has been very successful, as I have been able to observe by spending some time at each school.

MR. TAYLOR: As Professor Emerson suggested, great benefit might come from closer association of the natural sciences and the social sciences. One means of achieving this might be through the history of science, which is in some ways an excellent introduction to the humanities.

MR. FISCHER: I point out a serious situation which constitutes a barrier to expanded intellectual cooperation: It involves the problem of admitting graduate students from all Asian countries, including Taiwan. Certain American universities are simply denying admission to any Asian students because of the difficulty in ascertaining the quality of their preparation and of their knowledge of English. Could we not arrange for an academically trained person from America to visit Asian countries and interview the candidates personally? I should also urge caution on Professor Emerson's point about equipment: today it is the exception when a man achieves a breakthrough with limited equipment. However, I believe that ample support is available for laboratories abroad, and it should be drawn upon.

MR. BODMAN: I should urge the need for fundamental research in agriculture, especially since the pressure for the solution of urgent practical problems is so great.

MR. TENG: The need for equipment, especially in physics, must be emphasized; and part of that can be met by the use of surplus research equipment in this country. I myself failed in an attempt to get an outmoded computer to Taiwan simply because of red tape; we need an agency to handle such matters.

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WEDNESDAY AFTERNOON

PROPOSALS FOR FUTURE INTELLECTUAL COOPERATION

Chairman: LI CHI
Rapporteur: FRANZ MICHAEL

MR. MICHAEL: As rapporteur for this session, it has fallen to me to select from the large number of excellent papers submitted to our Conference and the impressive presentations given to us by our speakers, and from the many important comments made in the discussions, proposals to be discussed in this session and then to be submitted to the committees for the formulation of their reports and resolutions. In view of the great number of proposals made and the time needed for discussion, I will deny myself any personal comment and simply report on the material as it appears to me. To do this it seems most practical to make a division of these proposals into two categories, as suggested by several speakers. These categories are: (1) Special proposals that deal with matters of content or the application of concepts to special problems, as Professor Kuznets suggested, or proposals of substance, as Professor Eckstein called them. (2) Proposals on methods of cooperation, or as Professor Eckstein said, on institutional mechanisms that cut across disciplinary division. The two are, of course, indivisible because no cooperation on substance is possible without a mechanism for carrying it out, and no organizational arrangement will be meaningful without the substance that gives it life. But it is useful to regard the two separately, and I shall so present them.

I would like first, though, to make a comment on our procedure. The plan for tomorrow is to divide our group into committees dealing with problems in the fields of the humanities, the social sciences, and the natural sciences. Professor Eckstein has pointed out that the institutional mechanisms with which we will be concerned cut across these lines, and he has therefore suggested the establishment of a different type of committee that will deal with specific organizational proposals. Personally, I would suggest that the topics on substance might well be discussed under this trinity, perhaps tomorrow morning, and in the afternoon we might take up the organizational proposals in a different set of committees.

I.

Let me first deal with the topics on content, or substance. Here, too, we have to deal with two different approaches. One is the problem of the universalization of the disciplines, or of dual parochialism, as Professor Lasswell called it; the other, the problems of bringing together the tools of several disciplines in interdisciplinary cooperation for the study of issues that go beyond the scope of any one discipline.

1. Let us begin with the universalization of the disciplines. One of the most impressive examples of a disciplinary framework that can be used in application to the problems of differing societies has been given to us for the discipline of economics by Professor Kuznets. He stated that the methods of analysis used in economics today for quantitative measuring, and especially for the studies of national incomes, can be universally applied, and that data for this process should be securable from a wide variety of social structures. Cooperation in this field, as proposed by him, will provide data on economic growth, data most important, not only in themselves, but also for comparative purposes. There has been some discussion of the readiness in Taiwan for such work, and our optimist, Prof. Liu Ta-chung, believes that this can be done and has pointed out the importance of demonstrating such growth, particularly in view of the claims made by Communist propaganda. Here, then, is a project which could be planned.

2. To match this proposal in the social sciences, we have had discusssion in the field of the humanities of the role of creative art as a stimulus to an existing cultural development. Dr. Thompson has, in his paper and in his comments, pointed to the role Western music is playing as a stimulus to cultural growth, and he has a specific seven-point proposal for support of this plan. I would like to say that a complementary aspect of this Western influence on Chinese culture is the effect Eastern painting and Eastern poetry have had on Western art. To give just one example here in Seattle: Mark Tobey, the great Northwestern painter, who today has been internationally recognized, has admittedly been influenced by Chinese and Japanese painting. Poets like Ezra Pound, Klabund, and even some of the "far-out" generation in San Francisco, have been affected by whatever knowledge and impression of Eastern art they have gained. This two-way influence in creative art could well be supported. Dr. Yuan mentioned art exhibitions.

3. Prof. Chen Chi-lu has pointed out that methods in anthropology can without difficulty be applied in Taiwan, as elsewhere. Anthropology claims a method of investigation which is specifically designed for application in different settings. Professor Chen's plea for less Navajo and more study of the tribal people in Taiwan and related areas makes good sense and will, I am sure, appeal to anthropologists.

4. As for political science, it has been pointed out by Professor Creel that the study of government is an art as well as a science and that an important opportunity for research exists in the study of Chinese government, the present government of Taiwan, I take it, as well as the historical tradition. Professor Lasswell has pointed to the importance of the experience of the collective process on Taiwan, the study of the degrees of participation in government by various groups in decision making in a fortress society. From such studies could be derived not only a better understanding of the political process in Free China than now exists, but also useful general observations for our knowledge of political science. Dr. Tsiang Tingfu's ideas on a center for that purpose seem to have expressed something similar.

5. In the field of law, Prof. Peng Ming-min and Professor von Mehren have both proposed work that would bring out comparative aspects of legal structures.

6. The least difficulty exists in applying the efforts of the disciplines of the natural sciences to the work done on both sides of the Pacific. Indeed, the enthusiasm with which the scientists develop ideas of cooperation has been impressive to us. There are, of course, great obstacles. The problems of finance, of equipment, of the right climate to develop such work on Taiwan will be referred to later. In substance, there should be no problem. The point was made that it is important for scientists to get together and to keep each other informed through correspondence of the latest developments in their rapidly changing fields. Such contact is all the more important because it often takes time for the new ideas to appear in print.

Aside from these general observations, a number of special points were made. Professor Emerson pointed out that it would be most practical to pick unique types of research related to the materials available on Taiwan. Many of the animals of Taiwan, he said, have not yet been scientifically named and described, and I can't help visualizing these unfortunate animals remaining in ignorance of their true character. President Chien, in his survey, mentioned the fields of (a) zoology, (b) botany, (c) geology, and (d) medical science as obvious examples. Dean Merritt and Professor Meinwald stressed the possibility of the use of (e) indigenous products for research in chemistry and for pharmaceutical purposes. Professor Teng mentioned the special opportunities for research on (f) cosmic rays, (g) geophysics, (h) satellite tracking, (i) meteorology, (j) fisheries, and (k) oceanography. These were among the examples mentioned as specifically applying to Taiwan in the field of the natural sciences.

These, then, have been the main proposals for cooperation in different disciplinary fields with the aim of overcoming our parochialism. But not all disciplinary fields are as ready to apply their methods in different settings or know as well what they want to do. Other disciplines in the social sciences, for instance, have, as Professor Lasswell pointed out, still to develop an approach to the study of peoples of diverse backgrounds to gain an intellectual synthesis. They have still to achieve a parallel degree of intellectual agreement on the framework to be applied. Professor Lasswell himself suggested a study of the power systems, a problem for which new methods of study would have to be developed. But this is an example which indicates how difficult it is for any one given discipline to deal with a problem of such complex nature. Another example could be the comparative study of the role of the intellectuals in society, which I personally regard as fundamental, but obviously not in the realm of any one discipline. Even such economic problems as the development of agricultural production under differing systems of collectives and communes, cooperatives and private enterprise, cannot simply be dealt with in economic terms alone, but have to be based on an understanding of social and political institutions and ideologies.

7. Consider the population problem. There is a danger today that people of one discipline, realizing the breadth of the problem, will go beyond the

methods of their own disciplinary field without consultation and critical advice from people in other fields. We need not only the universalization of the disciplines, but a reassertion of the unity of knowledge through cooperation. In the study of population growth, the interdisciplinary approach is essential.

In the past it was possible for any one scholar to acquire the knowledge of his time. Today, specialization has made that impossible. In the past we had a common framework, *religio mater scientiae*, then *philosophia mater scientiae*. There are no more mothers now. We are orphans and have to work with each other to form a society of knowledge that must not end in anarchy. Most of all, however, we must beware of the bad stepmother: any discipline that tries to assume authority beyond its specialization. I believe that our discussion has shown that there is a great interest in interdisciplinary cooperation and a realization of the importance of it. Professor Mao's paper, and many others, have either directly or by implication indicated this. Professor Lasswell has stressed it; and the emphasis given by our scientists on the role that the humanities have to play in scientific work seemed particularly important to me. I believe, therefore, that in all the proposals we have before us, we ought to keep in mind not only the cooperation between people within one discipline, coming from either tradition, but also the work that can be done through combining people from several disciplines in any of these projects.

Under the questions of substance, there should also be mentioned the question of the general cultural impact and contribution that such cooperation can mean. President Hu Shih, in his inspiring speech, has given a view of the role of the Chinese cultural tradition, based as it was on free, rational thought, and has asserted his belief that this tradition of intellectual freedom will not perish. We have agreed that it is naive to see on one side an emphasis on humanist values, and on the other an emphasis on the natural sciences only. Both traditions contain the elements of all aspects of human thinking, and an interchange will mean strengthening the whole tradition. Cooperation is, perhaps, most important in the field of general education and in the support of the educational systems, as has been pointed out in a number of papers.

II.

All this cooperation can become a reality only if it is carried out through an institutional mechanism. I simply want to list the proposals made and refer to the papers that deal with them.

1. *An exchange of persons.* This would deal with an exchange of professors and of students, and short visits; and to this we might add an exchange of creative artists. One proposal that is important in this connection is Professor Wheeler's suggestion of talent certification. This was also mentioned in the discussion by Dean Lynn Merritt and Edmond Fischer. The problem of the selection of Chinese students to come to the United States was particularly stressed, and it is obviously a very critical thing. Professor Fischer suggested that some specific person should be sent over-

seas to the country from which these students were coming. (See also papers by Wheeler, Thompson, Chiang Fu-tsung, Wilbur.)

2. *Inter-university cooperation.* There have been many examples of this, and one of the most important that has been mentioned is the so-called "American Studies Center," which is described by Professor Lui Chung-hung. (See also papers by President Yen Chen-hsing, Geoffrey B. Bodman, Liang Shih-chiu.)

3. *Coordination between different agencies.* Prof. Walter Laves spoke on the whole question of government and private sponsorship; a special point was made of the problem of coordination between the many different agencies in existence. The question of agencies is discussed in the paper by Chiang Mon-lin in which he describes the Joint Commission on Rural Reconstruction (JCRR). Prof. Shen Ye-tsen explains the role of the Fulbright program; Dean Shen Kang-peh cites a number of examples of sponsorship by various agencies.

4. *Translations to share each others cultural and scientific heritage.* President Hu Shih spoke of the possibility of setting up a commission to plan such work. There are papers by Mao Tzu-shui, Chang Fo-ch'uan, and a strong appeal by Hsu Dau-lin.

5. *Materials—library, indices, archives, handbooks.* A special point made by Dr. Nunn in a proposal that came in today was the urgency of the establishment of a microfilm installation on Taiwan, the only place in the Far East where this does not yet exist. Much discussion has centered around the importance of a microfilm installation for the natural sciences. A proposal was even made for getting secondhand surplus equipment that might still be very useful. While there have been examples of scientific work done with very little or no equipment, and while some of the mathematical problems require simply pencil and paper, it was pointed out that this kind of research was the exception rather than the rule. In fact there may be a certain danger in overemphasizing the theoretical rather than experimental research. Professor Meinwald's statement that the basic equipment could be had for the sum of $20,000 to $100,000, which seems like a small sum in this country, indicates the grave financial problem faced on Taiwan, where this sum must be regarded as a tremendous amount. (See papers by Edwin G. Beal, C. Martin Wilbur, T. L. Yuan, Chiang Fu-tsung, and Lo Chia-luen.)

6. *The development of centers.* Proposals were made by John L. Wheeler, Lo Chia-luen, F. W. Mote, Chang Fo-ch'uan, and others, and all should be considered. President Chien mentioned that in the natural sciences it is more important to strengthen existing centers than to establish new ones, although one proposal for a computing center was especially stressed in one report. To me the most important proposal is the one for the creation of a center on Taiwan, which is the first item on the list of proposals attached to our agenda. This center has been heartily supported in the discussion by Professor Creel and several other speakers, and was formally made as a proposal by Professor Eckstein. I would hope that this discussion could begin with this idea, to which we have not as yet given full time.

7. Establishment of a permanent liaison agency, or standing committee. Finally, there is a proposal to set up some permanent mechanism for continuing the work we are initiating here. This, too, should be fully debated in our session.

In closing, I would like to repeat an idea that has been expressed several times. While we are dealing with these special problems of intellectual cooperation between Free Chinese and United States institutions and scholars, we are dealing in fact with what is only a part of intellectual cooperation. What we are trying to do is to contribute in all fields of study to the growth of scholarship in our free tradition. I believe this is the first time that such a general attempt has been made. This gives our discussions a special excitement and our proposals a special importance.

SUMMARY OF WEDNESDAY AFTERNOON'S DISCUSSION

Dr. Li Chi opened the session by remarking that after three days of discussing ideas and ideals, the Conference had arrived at the stage when decisions could be reached. Dr. Li also pointed out that the word "China" had been used both as a geographical term and to denote a civilization, and that it was important to keep the difference in mind. While we could conveniently discuss cooperation between the three different branches of modern knowledge represented in the Conference, we had also come to realize that it is very difficult to draw a line between them—witness the constant employment of the term "interdisciplinary." So there was no reason for the three groups to compete with each other for proposals. Most modern branches of knowledge include something from the natural sciences, the social sciences, and humanistic studies all at the same time.

Dr. Li recommended to the Conference the memorandum by Dr. Chiang Mon-lin and drew attention to the fact that Dr. Chiang was one of the wisest and most senior of the Chinese delegates. Dr. Chiang has spent a lifetime in promoting intellectual cooperation between America and China, and what he says in his memorandum comes from his long and rich experience.

The rapporteur, Professor Michael, spoke on the proposals which were submitted in the papers for the Conference as they appeared in the light of the Conference discussions.

In opening the discussion following Professor Michael's paper, Dr. Li Chi pointed out that everyone had available a tentative outline of proposals, the first one of which was a proposal for the creation of a center on Taiwan.

Dr. Hellmut Wilhelm pointed out that the proposal for a center was reflected in many of the papers submitted to the Conference and that it had come up in our discussions. There are several models which can be examined, but conditions in Taiwan today make it unlikely that any model could be imitated exactly. There were mentioned the International House in Tokyo, the Korean Center, and the Chinese Social and Political Science Association, which flourished in Peking in the late 1920's and 1930's. Dr.

Tsiang Tingfu wrote on this last subject. The main thing that should be copied from this center is the spirit of close cooperation among those who belonged to it and who went there for study and research, for lectures, and other activities. It would be a great contribution if we could recreate this spirit. The Chinese Social and Political Science Association had ample facilities, an adequate and even considerable library, lecture rooms, and an attractive physical plant. A possible difficulty on Taiwan is that scholars do not have time to devote to the creation of the cooperative spirit, that such a center would be a luxury they could ill afford. For this reason the center should have excellent facilities for study and research, particularly a good library which should be strong in materials that are not otherwise easily available in other libraries on Taiwan. There are excellent libraries on Taiwan, some of them not duplicated in any other part of the world, but there are specific clusters of disciplines that are not so well taken care of, and in this the center could specialize. It would be very useful for the center to have current materials, especially the current journals dealing with the various sciences. There should be a microfilm reading room, a study room, and an auditorium. The library should be set up on an international basis.

The functions of such a center might include provision for lectures and for faculty seminars in all the disciplines. The center should not be limited to the study of China. It might organize summer institutes, or continuous institutes. It might be a place where such matters as the problem of language teaching could be discussed, and also such matters as the general problem of cultural exchange. It would be a place where scholars could be introduced to each other. We might even discuss whether the center could take up the function of screening, which was mentioned by several during this Conference as one of the very pressing problems.

The question arose as to who should institute such a center. Professor Wilhelm expressed himself as being in favor of getting a commitment from the institutions represented at this Conference to act as the sponsoring agencies. Other institutions could be added if they so wished, but a commitment should include a continuing interest, continuing advice, and continuing contributions. It goes without saying that the Chinese institutions represented here would have to be thoroughly committed. One could envisage a board of trustees and an executive board which would decide upon the program of the center. There might be a permanent secretary and an assistant secretary who might be provided by the American institutions on a rotating basis. There would have to be librarians and other staff. Professor Wilhelm expressed the hope that such a center might grow into one of the major agencies of cooperation between the Republic of China and the United States.

Dr. Tsiang referred to the brief sketch embodying his recollections of the Chinese Social and Political Science Association in Peking. He stated that he was in favor of a center in Taipei, that such a center could perform useful services for scholars both from abroad and in Taiwan.

Dr. Eckstein suggested that one of the major functions of such a center would be to help in the training of American graduate students in Chinese studies. Many American institutions are now training Chinese students in Chinese studies, but such training should always culminate in a protracted intellectual experience in the environment of the country concerned. This argument was supported by Professor Creel, who referred to the help he had received from T. L. Yuan and others in Peking some thirty years ago. It is important to realize that students do not secure the right sort of contacts and guidance unless someone is responsible for their provision. Professor Thompson suggested that the recommendation for a center be submitted to a committee, and Professor Laporte expressed the hope that the center, of which he was in favor, would not be too narrow in concept and regretted the apparent absence of the natural sciences.

Dr. Frank pointed out that some of the practical questions concerning the center were very imporant. "The ingenuity which brought this group together might suffice for the formation of perhaps a 'Sino-American Universities Association' which could then take under its wing a wide variety of undertakings." The Center for the Humanities and Social Sciences would be one of these undertakings, but this Association could also be a focus through which support for the existing institutes could flow; it would seem that many of the items which need discussing could be turned over to such an association.

Dr. Eckstein pointed out that it is necessary to proceed with great caution. Perhaps an inter-university committee is not the best instrument. We should not pass any resolutions that would commit us at this stage to a particular form of a particular agency that would be charged with the execution of the planning of this proposal. Professor Shen Ye-tsen personally gave his full support for a proposed center on Taiwan. "As an executive officer of the U.S. Educational Foundation in China, I would also like to assure you that our Foundation will wholeheartedly do its share."

Dr. Hu Shih said that he wished to suggest the formation of a committee to formulate plans for a center. He recalled the plans for a research center with library facilities in the Institute of History and Philology for which the ICA contributed over NT $2,000,000. "We have about 200,000 volumes of a select library which I consider the best library for the humanistic studies in the Free World today, and we are going to have in this new research center with library facilities, study rooms for visiting scholars who are now living in Nan-kang, a suburb of Taipei. I cite this to show that both Dr. Li and I are in full support, but I would like very much to suggest to the committee of experts before me who have thought about the matter, that they be given full authority from this Conference to study and plan ways and means for implementing this idea." Dr. Hu Shih then suggested this as a motion.

Dr. Laporte again expressed his concern that the center should be limited to the social sciences and humanities. Dr. Michael brought up the same point about the neglect of the scientists. It was also pointed out that the Conference was considering a very wide range of proposals, and that it might be useful to set up some sort of criteria with reference to time, area, and intellectual priorities so that we could select those things that should be undertaken first. For example, we might emphasize activity in Taiwan more than that in the U.S. during the first stages. With reference to intellectual priorities, we might say that things like the "spirit of free invesigation" are more important than anything else.

Dr. Michael explained the list of proposals that he had drawn up and also strongly supported Dr. Hu Shih's first proposal to set up a special committee to study the center. Such a committee should be set up independent of the general continuing committee because the center is a vital matter and one that combines many of the other proposals that are under discussion. But the main thing is that nothing should be done without the full advice and commitment of our colleagues and friends in Taiwan. The whole matter, therefore, requires a good deal of deliberation.

Dr. Frank said that President Chien had asked him to reassure Professor Laporte that he was not "selling the natural sciences down the river." His point was that in the social sciences and humanities there is a real need to set up a new center, whereas in the natural sciences there are existing centers and parallel action is indicated to strengthen these centers; such action corresponds exactly with the creation in the social sciences and humanities of the new center.

There was further discussion of ways and means of organizing a center, and reference was made again to Dr. Hu Shih's suggestion of setting up a committee.

Dr. Creel, commenting on the translation projects, made the point that Prof. Chen Chi-lu's project was more ambitious than he himself had in mind and that rather careful study of the whole situation should be made before the Conference committed itself to definite proposals. Support was given for the proposal for cooperation on research programs and exchange of faculty, students, and materials. There was also some discussion as to the work of the committees on Thursday. It was suggested that the three committees originally envisaged—the humanities, the social sciences, and the natural sciences—should meet in the morning; but in the afternoon there could, if necessary, be a different grouping of the committees to take up the proposals and to discuss the mechanics of cooperation. In any case it was agreed by the Conference that all the projects listed in Dr. Michael's paper should come up for discussion in committee on Thursday.

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REPORT OF THE COMMITTEE ON THE HUMANITIES

The humanists, in their full committee discussions, expressed deep concern about the condition of the humanities in our world and the reflection of this condition in the work of our Conference. Despite a generally prevailing and often generously expressed spirit of acceptance of the idea that the humanities do contribute to the solution of problems in the other fields of learning, we feel that there has been no adequate realization of real problems, much less response to basic needs. The humanities apparently occupy a steadily deteriorating position in relation to the other fields of learning, a position that is in large part the accidental by-product, not the planned result, of various tensions of modern life.

Yet as we look at the tasks of international cooperation, it is clear that the humanities may have an even more significant role to play than the sciences, which are concerned with uniform and universal concepts and values, and whose understanding demands no retreat from cultural parochialism. Cooperation in the humanities, on the other hand, demands participation and understanding that can deeply affect the participants on both sides. Thus the role of the humanities in cooperation of all kinds cannot be minimized. This Conference itself, in all of its work, has been largely a humanistic undertaking. The sciences, including, by their own definition of themselves, some of the social sciences, have no national boundaries. In contrast, the humanities, by their nature, are involved with regional and cultural variations and see value in them. Cooperation is the only way of making these values accessible beyond regional boundaries.

The Committee felt particularly concerned about the inadequate emphasis on the Chinese tradition. We affirmed our belief that the value of Chinese traditional culture maintains its validity in the present age. Some schools of Chinese philosophy, large aspects of Chinese history, many works of Chinese literature have not been explored. They constitute an immensely rich portion of mankind's heritage, and our generation must make them meaningful for our times, or be the poorer. Moreover, as objects of study, they can broaden the range of knowledge, contribute to comparison and analysis, and in many ways be relevant to the tasks of learning in general. We cannot claim these truths as discoveries of this Conference, but we believe strongly that they merit forceful reaffirmation here.

Moreover, we believe strongly in the humanistic values of the Western culture, and in the context of this Conference, it is appropriate to say, of American civilization. American culture is not sufficiently represented or fully enough understood in Taiwan; it is, in fact, not infrequently misrepresented there. We all feel that it is important to correct this. America, as the chief representative of Western Civilization in Free China's contacts with the West, must be better known. Furthermore, the present trends in American studies and their methods can be utilized to accomplish this as well as to provide useful models that can contribute to other fields of learning in China.

As we turn to techniques for accomplishing the goals implicit in the foregoing, the subject of translation comes first to mind. Much translation has been done in the past, and many of the existing translations are great achievements in scholarship and as literature, but much remains to be done. It has been mentioned that literary works must be translated by each age for its own needs, so re-translation of some works is not wasted effort and does not necessarily imply depreciation of earlier efforts. Two kinds of needs in translations are distinguished here. The first is for translations of the classics of the two civilizations. We feel that support for continuing translation of these and for their publication should be promoted; often the original texts should be published together with the translations. However, it is felt that any ill-considered mass translation project should be avoided, that quality should be carefully sought both in works and in their translators, and that there should be a greater degree of coordination with agencies engaged in similar endeavors. As a field for cooperation, the translation of the great classics of history and philosophy and literature offers great possibilities. Often two scholars can work together; often the facilities of existing international agencies can be employed. The cooperation in such activities and the coordination among scholars and agencies should be a major responsibility of the continuing agency that will emerge from this Conference.

A second category of translation needs is that which we designate "service translations." These are primarily to expand scholarship and to aid the furtherance of knowledge by keeping each of the two academic communities aware of the current developments in the other. Often summaries and abstracts are valuable for this purpose. It is suggested that translations by students, under the control of their professors, of works of current scholarship, whether full or summarized, might be produced as the by-product of graduate education in the two countries. For this also, a liaison and dissemination function could be performed by the continuing agency of this Conference.

The translation of textbooks is a special problem involving mainly English to Chinese and subsidy for publication.

The subject of language training is also of greatest importance to the humanist. This committee recognized that much has been done in this field in the preparation of textbooks and in the development of methods. The basic situation is better in Chinese and in English than with many other languages. But on the implementation of higher level language training, much is to be done. Agencies to assist the student to take the giant step from the classroom in his own country to the lecture hall in the foreign country must be broadened and improved. The committee took note of the report that this problem, as it concerns Americans studying Chinese, is also receiving study elsewhere, and that we must learn about and coordinate our actions with those of others. A similar need exists for assistance to language training for Chinese coming to the West; we are warned to recognize the seriousness of the need and not to hope for any simple solutions to its problems.

We have considered carefully the fact that in China the humanities have been grossly slighted in the granting of fellowships and we have even noted agreement on this from colleagues in other fields of learning. Adequate fellowships, on the other hand, seem to exist for Americans who are studying in China. We want to stress a great need for two kinds of fellowships in the humanities in China. The first is for Chinese who want to come to this country to study in the humanities. Existing regulations or principles in some cases, or prejudices in others, work to prevent Chinese from going abroad to study their own cultural traditions. To a certain extent this also has worked to discriminate against Chinese students who want to come to America to study American literature and history. Here students often meet the reluctance of American universities to extend fellowship aid to foreigners. In part, the solution to these problems must involve a change of attitudes on the part of institutions in the two countries, but in part, it also must involve improved certification of applicants from China. Second, and equally important, or perhaps even more so, is the need for fellowship support to Chinese students of the humanities on the college level in China. The committee noted with great concern the seriousness of the decline in the number and the quality of students selected to study the humanities in China, and suggested that it could be partially countered by such a fellowship program. Full fellowship support of the kind that long has been the rule in the sciences in China should be made available for the full four years of college to good students, both Chinese and Western, who wish to study in the humanities. But again, we should be cautious of mass-programs and the need for quality-control is stressed.

In the general area of exchange of personnel, the need for improvement and expansion of the effort, with particular reference to the Chinese and Western humanities, was noted. More specifically, it was felt that American studies programs, like that cooperatively maintained by National Taiwan University and the University of Washington, should be expanded. The strong hope that visiting American professors would remain in Taiwan for a minimum of one year was expressed. Third, the difficulty of getting professors of American history and literature is looked upon as a real drawback in the way of the improvement of such studies in Taiwan; the chief problem is funds for their support, rather than lack of qualified and willing visiting professors.

In many other fields directly related to the humanities, exchange of persons is badly needed. There have been several concrete proposals for specialized training programs to meet crucial needs in the technical training of librarians, museum personnel, language teachers, etc. These could in many cases be best handled by temporary loans of specialist instructors. In quite another area, the important contributions to the cultural life of both countries that could be derived from the exchange of artists, and of performing groups in the creative arts, has been set forth.

A whole complex of problems exists under the heading of materials and their handling, involving museum and library facilities, microfilming, photographing and processing, etc. Reference is here made to the papers prepared by Messrs. Beal and Yuan jointly, a second one by Dr. Yuan separately, and by Dr. Chiang Fu-tsung and Dr. Raymond Nunn, the content of which is referred to here as part of our record.

We have reviewed the main lines of discussion as they related to techniques and mechanisms; let us now turn to some substantive proposals which the humanists feel might be among the most fruitful areas for their researches. Included here are merely some of the more striking proposals made, a suggestive rather than an exhausive listing.

First, it was noted that in the field of linguistic studies the descriptive linguist could look upon Taiwan as a laboratory, full of inadequately studied aboriginal languages. Simultaneously, the philologian finds there inducement to study in the world's best library collections and with leading scholars in the phonological and philological fields which traditionally have been important in Chinese studies. On the other hand, however, it is noted that there are no American linguists in Taiwan and that some are seriously needed for teaching and training purposes.

The creative arts seem to deserve a special word. Performing and creative artists have seldom been granted consideration in the field of intellectual cooperation, but we feel that great stimuli to the arts can come from such exchanges. Exhibitions have been exchanged, and more should be; but there should be still more travel to Taiwan and to America by students of the history of the arts, for at best only a small portion of museum collections ever will travel. A third point is that art is cultural material which, in the West, is increasingly studied as a kind of source material of history. Prof. Millard Rogers is preparing a paper containing proposals on these subjects which will be submitted to the continuing agency of this Conference. Finally, the appreciation of Western art in China is very great, but the materials exhibited have often been deficient in amount and in quality; and, in addition to original works, there is a great need of slides and copies and architectural models for research purposes.

Prof. Laurence Thompson has submitted a detailed proposal concerning music, to which reference is here made as part of this report and to which the strong approval of the committee is given.

Prof. Charles Moore proposed several topics in the field of Chinese philosophy. The over-all spirit of them implies that the study of the humanities in China often should be freed from the imposition of our standard Western categories and concepts; a more detailed discussion of his proposals exists in the permanent record of our committee meeting.

It is also noted that Chinese literary criticism has reached a level of sophistication that has scarcely been equalled in the world, but which is only commencing to be known through the pioneer work of Profs. Vincent Y. C. Shih and Ch'en Shih-hsing. This field richly deserves further study.

American studies, it was noted, simply do not exist yet on Taiwan. National Taiwan University has the only real course on American history. Otherwise, American history and culture receive only occasional and passing reference in more general courses, and American literature often forms only a small part of larger courses on English and Western literature. It is suggested that the most appropriate corrective for this should be sought outside of the existing established curriculum. Dean Shen Kang-peh urges the establishment of an American studies center, with library seminars, and supporting activities of a high quality. A number of concrete proposals relevant to American humanistic studies exist in several of the papers; it is the committee's judgment that this important area of study deserves fuller exploration and discussion.

* * *

Our committee spent half or more of the meeting time yesterday discussing the "Center." The assumption is that whatever continuing agency this Conference establishes eventually would be organically related to such a center. We feel that a center could be the agency for carrying out or contributing materially to most, if not all, of our concrete proposals for the cultural cooperation between our two countries, and in particular with reference to the humanities.

Dr. Lo Chia-luen has more or less summed up the sense of our committee discussions in his diagram of the structure of such a center. He envisages three branches of the center to be concerned with the three fields of learning. The center's initial tasks should consist mainly in planning and coordinating activities of a cooperative nature and in maintaining close contact with all related institutions, both Chinese and American, and with individual scholars. The center's own research or training activities and other functions can be left for further study and discussion.

With particular reference to the study of China's humanistic tradition, both by Chinese and by American scholars, Dr. Hu Shih pointed out the overwhelming logic of locating such a center in Taiwan, where the concentration of human and material resources is unmatched in the Free World.

* * *

In summing up the attitude of the committee with regard to all future cooperative activities in the field of the humanities, we feel that we humanists, no less than other academicians, *can not* abdicate our responsibility to be the prime movers in conceiving and carrying out such activities. Despite all too frequent intrusion of gratuitous advice, we feel that we should reiterate the sound principle of ignoring excessive direction which is not academic in origin, and above all we must avoid the temptation to tailor our proposals to meet exigencies of a nonacademic nature. In short, we must sincerely determine what we really feel is worthy of being done and submit to no compromises of this principle.

HERRLEE G. CREEL
HU SHIH
LO CHIA-LUEN
SHEN YE-TSEN
HELLMUT WILHELM
FREDERICK MOTE, *Chairman*

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REPORT OF THE COMMITTEE ON THE SOCIAL SCIENCES

During the previous sessions of this Conference, several important objectives related to the continuation and expansion of Sino-American intellectual cooperation have been identified. This Committee fully realizes the extent to which such mutually beneficial cooperation, which has a history many decades long, has already contributed to significant developments in the academic and intellectual life of both the United States and China. Taking note of such developments, the Committee believes that further efforts may contribute profoundly to the intellectual resources and thereby to the national welfare of both countries, and that such efforts should be undertaken by universities and other academic institutions of both countries jointly. The Committee has emphasized objectives in the field of its own purview, namely social sciences, but believes the articulation of those objectives with objectives in the humanities and natural sciences to be of great importance.

The objectives outlined below ought to be pursued under the general direction of a "Continuing Committee of the Conference," to be appointed at this session. This continuing committee would be charged with the function of exploring all possible avenues of realizing the objectives listed, calling for assistance upon any individuals or groups it deems proper.

The Committee is much impressed by the range, scope, and vigor of the various proposals made in papers presented to the Conference in the social sciences. In the time at its disposal, it does not believe itself capable of passing helpful judgment on the relative importance of those proposals. The Committee has in mind in part the difference in the level of generality and of detail in the proposals presented, in part the desirability of considering further needs and initiatives in the social science fields. Therefore, the Committee recommends that a continuing committee take responsibility for facilitating, planning, and developing individual research projects in this area.

The Committee invites attention to the following objectives which may advance the opportunities for successful Sino-American intellectual cooperation in the fields of research, teaching, and publication:

1. Extension of existing governmental and nongovernmental programs involving exchange of persons. The Committee particularly expresses strong interest in the inclusion of the social sciences in existing governmental exchange programs and hopes that Chinese scholars working on research topics concerning America and the West may be considered along with other candidates for participation in such programs. The Committee takes note of existing efforts to provide "third-country training" and urges that ways of usefully extending its scope be studied with care. The Committee is aware that numerous American academic persons now travel in the vicinity of Taiwan or participate in exchange programs with other Asian countries near Taiwan and believes that, with a minimum cost, such persons could be profitably included in Sino-American exchange arrangements for

brief periods, in addition to their other commitments. The problem of certification of scholastic attainment for Chinese undergraduates seeking admission to American graduate schools is, in the Committee's view, of such great importance as to demand new concrete methods of identifying those Chinese students who are of greatest achievement and promise.

2. Extension of existing arrangements for inter-university cooperation. Bilateral programs for faculty exchange between Chinese and American institutions have achieved results sufficient to suggest that other universities and colleges might profitably undertake similar arrangements.

3. Search for sources of support for the translation of important works from English into Chinese and from Chinese into English, especially the translation of basic works in the various social sciences from English to Chinese. It is suggested that the continuing committee consider what agency might appropriately define the purposes and priorities of such a program of translation.

4. Establishment of additional mechanisms for the exchange of materials. If a center such as the one described below is established, it might be able to coordinate efforts of this kind. The Committee heartily welcomes the plan to develop a microfilming center in the National Central Library. It expresses the view that the ample availability of materials in Taiwan desired by American research scholars working there, coupled with the ample market which exists for such materials in the United States, warrant the microfilming of such materials, and sale in substantial quantities. The Committee also calls attention to the need for microfilm readers for the use of Chinese scholars in Taiwan.

5. Establishment of a "Center" in Taipei. Such a center would have the purpose of encouraging and promoting research in the social sciences on topics for which the cooperation of Chinese and American scholars would be particularly desirable and of assisting in the improvement of teaching and training in fields in which such cooperation would be particularly beneficial. The center would be designed to assist and strengthen the work of existing scholarly institutions in Taiwan and the United States whose staff members might be concerned with such topics and fields, and to that end the center would maintain close relations with such institutions in order to avoid duplication of effort.

The center would undertake such activities as the following:

(a) Provide research facilities, including rooms, and a library housing a readily accessible collection of basic social science materials in Western as well as in Oriental languages, particularly current numbers and files of learned journals.

(b) Assist in the planning and initiation of research projects proposed by Chinese or Western scholars working in Taiwan.

(c) Assist in the planning of lectures, conferences, seminars, or institutes which might contribute to the training or scholarly development of young Chinese social scientists, as well as such programs as might further the training of Americans or other Western students or young faculty members in fields necessary to their successful work in a Chinese setting.

(d) Facilitate, where possible, the publication of the results of research conducted in Taiwan, with or without the encouragement of the center, where other support for publication was not obtainable.

(e) Act as a clearing-house for information concerning the availability of persons and materials sought by Chinese or Western faculty or students, arrange introductions where necessary, and assist such scholars in expediting their work.

The Committee expresses the conviction that all of the above objectives are attainable. As to the center, if it should prove unfeasible to undertake all its proposed functions in the beginning stage, the Committee urges that priority be given to the function of initiating research. The Committee is conscious not only of the contribution which research makes to the advancement of knowledge, but also of its fundamental importance for the training of the younger men from whose ranks tomorrow's teachers and research scholars must come. If a center of the sort proposed is set up, the Committee expresses the hope that the initial physical plant might be financed from private Chinese, including overseas Chinese, sources.

In conclusion, the Committee on Social Sciences urges the Continuing Committee to take whatever steps it deems appropriate to consider further the objectives outlined above in connection with the objectives set forth in the other committee reports, and to proceed as rapidly as possibly to realize them. A combination of Chinese and American effort is certain finally to produce the kind of result in the field of the social sciences which the Conference delegates, as well as many other scholars, confidently expect, and to yield the greatest possible intellectual benefits to us all.

CHANG FO-CH'UAN
HAROLD LASSWELL
SHIH CHIEN-SHENG
DONALD W. TREADGOLD
LI CHOH-MING, *Chairman*

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REPORT OF THE COMMITTEE ON NATURAL SCIENCES

The principal problems in intellectual cooperation between the natural scientists of the Republic of China and of the United States arise from the obstacles which have lain in the path of scientific and educational development in Taiwan in the last fifteen years. Great progress has been made in overcoming these obstacles, and there are many areas of science in which work now being conducted in the Republic of China is fully comparable with that in other parts of the world. Much still remains to be done, however, and it is to this that the present report is principally addressed.

The chief needs of the natural sciences in China are in the areas of manpower and of research facilities. In the first of these areas, we recommend that steps be taken under the following categories:

1. *The sending of faculty members in Chinese universities to the United States for visits and study.* There are many promising young faculty members whose training should be supplemented by periods of residence in American institutions where they could conduct researches and receive the stimulation of contacts in this wider sphere. Many such visits have been made in the past and the benefits both to the individuals and to their own universities have been great, and it is very desirable to continue and to expand this operation. In addition, senior professors can be greatly helped by spending leaves for research and study at appropriate institutions in the United States.

2. Reciprocally, *visits of American research scientists to Taiwan* have, in the past, proved to be both stimulating and productive, and have in many cases made essential contributions to the training of Chinese scientists. The number and scope of these should be increased.

3. *Steps to hasten the creation in Taiwan of conditions and facilities which will induce Chinese scientists now abroad to return.* A large number of Chinese graduate students who have come to the United States in the past ten years have, after the completion of doctoral or post-doctoral training here, taken posts in this country instead of returning to China. Among the causes of this are:

(a) the demand here for their services, and their knowledge that their work here is useful, and

(b) the fact that there are, at present, very few places in Taiwan where they could do work which would fully utilize their training. Their case is different from that of faculty members in Chinese universities, who have maintained a high average of returning to their posts upon completion of studies in America, and they represent a resource upon which it would be highly desirable for science in China to be able to draw. It is our feeling that if and when the work in centers in Taiwan has reached a high enough standard in program and facilities in any given field, many Chinese scientists now in the United States wil be ready to return to Taiwan either permanently or for limited periods. For them to do so would further accelerate the developments which we desire to see. For this purpose, consideration should be given to the creating in Taiwan of a few foci of exceptional strength where such a process could begin.

4. *The establishment of graduate student and post-doctoral fellowships tenable in Chinese universities.* This would enable a larger proportion of Chinese students to receive advanced training in China and would also create opportunities for American graduate or post-doctoral students interested in appropriate subjects (*e.g.*, certain areas in biology, geology, and the chemistry of natural products) to conduct research in Taiwan.

5. *The strengthening of programs of subsidies to research workers in Taiwan.* The exceedingly low level of academic salaries in Taiwan has been a source of grave concern. Steps have recently been taken by the National Council of Science Development, created by the Chinese Government, which provide subsidies to research workers to enable them to devote their attention more fully to research. This program has been exceedingly valuable and should be assisted in order to make possible the inclusion of larger numbers of persons.

6. *The rating of outgoing students from Taiwan.* The difficulty which admissions officers in American graduate schools have experienced in evaluating the credentials of applicants from Taiwan has been perplexing, and has in some places even led to the discontinuance of admission of such students. This is most unfortunate since in many cases the students are highly qualified and in all cases their qualifications are known to the administrations of the schools from which they have graduated. We consider that great benefit would follow from the setting up of a procedure by which admissions officers could receive from Chinese university administrations evaluations of individual students upon which they could base their actions.

In the area of research facilities, we recommend that steps be taken toward:

1. *Provision of laboratory equipment and supplies needed by competent people engaged in research.*

2. *The improvement of library facilities needed for research.* This would include provision of microfilm facilities so that, for example, rare or expensive journals available in one university need not be duplicated in another.

3. *Exchange of research materials between China and the United States.* This would be particularly valuable in certain biological fields where exchanges of specimens could greatly facilitate research on both sides of the ocean.

4. *Provision of an electronic computer for the Computing Center of the Mathematical Institute of the Academia Sinica.*

5. *Assistance to research publication.* Whereas in some fields of science, publication of research results in journals is relatively easy, there are some fields in which journal space is very limited. In addition to this, it is occasionally desirable to publish monographs. In such cases, the expenditure of relatively modest sums to assist publication would bring important benefits.

In meeting the needs identified in the preceding paragraphs, we recommend that the following principles be followed:

1. Encouraging realistic basic research projects and programs in the natural sciences.

2. Preserving a proper relationship between the provision of equipment and the need for its current use.

3. Encouraging the establishment of reciprocal relations between individuals and institutions in China and the United States.

4. Identifying projects in the field of the natural sciences which have particular relevance in the Taiwan context, but also

5. Maintaining the principle of supporting free inquiry by outstanding individuals rather than emphasizing projects.

6. Exploring available sources of support from foundations and from the United States government.

In order to implement the foregoing recommendations, we consider it essential that the organizers of this Conference create a standing committee to take certain practical steps. One of these should be aimed at the creation of a permanent organization which might, for example, be called a "Sino-American Association for Intellectual Cooperation." This would need to have solid institutional sponsorship on both sides of the Pacific, but should be so set up that committees of active scholars would determine its policies. Since the natural sciences constitute only one of three areas in which this Conference was organized, we can only speak for them, but would feel that the policies of the association as they relate to the natural sciences should be determined by persons who are fully conversant with the nature and practice of creative scientific work, and who are also, or can become, familiar with the situation in Taiwan as it exists at the time. We assume that the policies of the association would be implemented through appropriate small secretariats which would have offices in Taiwan and in the United States and would need, of course, to work in close association with each other.

Since the establishment of such a permanent organization must necessarily take considerable time, we also recommend that the standing committee from this Conference proceed in the meantime with such steps as may be possible for the interim implementation of such of our recommendations as can be acted on at once.

CHIEN SHIH-LIANG
ALFRED E. EMERSON
LING CHIH-BING
LYNNE L. MERRITT
YEN CHEN-HSING
HENRY S. FRANK, *Chairman*

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APPENDIX

THE NATIONAL SCIENCE FOUNDATION AND INTELLECTUAL COOPERATION

by Scott Adams
NATIONAL SCIENCE FOUNDATION

The National Science Foundation is an independent government executive agency established in 1950 to promote basic research and education in the sciences. It gives grants for support of basic research in the sciences to scientific and academic organizations and institutions.

International scientific cooperation is of concern to the Foundation. The National Science Foundation supports the attendance of American scientists at selected international scientific congresses and conferences. It also awards fellowships to American scientists, science teachers, and graduate students to enable them to conduct programs of study and research in nonprofit institutions of higher education both in the United States and abroad. In certain instances, where research proposals are of unquestionably outstanding quality or unique character, or where the training of significant numbers of American scientists is involved, the Foundation has made research grants to foreign nationals for research to be conducted in laboratories outside the United States.

The improvement of international scientific communication is a necessary prerequisite for furthering international cooperation in the sciences. The Foundation has as one of its purposes the improvement of the interchange of scientific information between scientists in the U.S. and foreign countries.

Information about scientific activities conducted on Taiwan is, therefore, of concern to the Foundation. There are approximately twenty primary journals published in the sciences and technologies in the Republic of China which are available to American scientists by subscription or exchange. Approximately five are published in English, five more in Chinese with English abstracts, and the remaining ten are in Chinese. Apart from delays occasioned by geography, and the linguistic problem, there are no major impediments to American scientists learning of Chinese research.

American scientific publications are, similarly, readily available to

Chinese scientists. The major problems are economic and logistic. Scientific publications are expensive and libraries are poor.

The National Science Foundation is becoming increasingly concerned with improving scientific communication between the Far East and the U.S. There are a number of planned activities which will be of interest to the members of this Conference.

1. *Pacific Science Congress*

For the first time, the Congress to be held in Honolulu in August, 1961, will have a section on scientific information. This section, which is being organized by Dr. Burton W. Adkinson, Head, Office of Science Information Service, will consist of three symposia: one devoted to scientific publication; a second to the organization of information; and the third to resources of research information. Each symposium will have a morning session for invited papers, and an afternoon session devoted to contributed papers. It is hoped that scientists from Taiwan will be strongly represented both in the papers and in the discussions related to the technology of scientific communication.

2. *Closer liaison between scientific societies*

The National Science Foundation is very sympathetic to the efforts of American scientific societies to establish closer communication with scientists in Taiwan. The Executive Secretary of the American Institute of Biological Sciences visited Taipei recently to discuss closer coordination between Chinese and American biological activities. The Executive Secretary of the American Mathematical Society has proposed a similar exploration for the mathematical sciences. These efforts are compatible with the NSF philosophy of promoting in American scientific societies a keener awareness of the research activities of their foreign colleagues, and of encouraging them to establish mechanisms for the interchange of research information.

The fields in which the National Science Foundation is interested for future activities comprise scientific translations, scientific abstracting, and the improvement of the exchange of scientific publications. Special mention may be made of the Foundation's interest in supporting research on the machine translation of Chinese into English. It is expected that the present Conference will serve to focus attention on needs for improved communication, and the Foundation welcomes suggestions from the Conference participants.

INTELLECTUAL COOPERATION THROUGH THE EXPERIENCE OF THE MUNICH INSTITUTE

by William B. Ballis
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The problem of mobilizing the intellectual resources of a significant Soviet emigré group located in Munich, Germany, but drawing upon fellow Soviet emigrés in other parts of Germany, Austria, Western Europe, and even the United States, is not entirely unlike the problem of facilitating the intellectual exchange between academic groups on Taiwan and individual scholars and learned bodies in the United States. The waves of emigration from the Soviet Union, during and after World War II, left scattered groups of emigré intellectuals, principally in southern Germany and western Austria, with little opportunity to continue the intellectual pursuits which they had followed in the Soviet Union. The Harvard Interview Project in 1950 served as the first catalytic agent to bring together these displaced intellectuals in a common academic endeavor. The Harvard Project used these intellectuals and many other nonintellectuals of the emigration to elicit data about the Soviet Union. In many instances the intellectuals served as links between the American interviewers and the emigration. After the completion of the interviews, a small group of the Soviet intellectual emigrés, about a dozen, joined together in Munich to form an institute. The institute was first called the "Institute for the Study of the History and Culture of the USSR." The name was later shortened to the "Institute for the Study of the USSR." Organized in the summer of 1950 and quartered in two rooms in an apartment house for displaced persons, this Institute has grown to an impressive academic organization housed in a large building and staffed with 65 full-time emigré researchers in most of the fields of the humanities and the social sciences. Scholars in such diversified subjects as the archaeology of ancient Russia, Soviet criminal law, state finance of the USSR, the Armenian cultural renaissance, etc., pursue their researches which they began in the Soviet Union. Many young scholars who have been trained abroad by some of the older emigré scholars and Western teachers are also engaged in scholarly work in the Munich Institute today.

The activities of the Munich Institute in its early years consisted largely of holding conferences and publishing materials. In 1951 the Munich Institute began to publish proceedings, reports, and discussions of its conferences. The first Institute conference met January 11-14, 1951. Conferences have been held every year since then, and the twelfth conference is to be convened in the summer of 1960. In 1951, the Institute first published its regular scholarly journal, the *Vestnik*. Since this first number of the *Vestnik,* the Institute has published 35 other issues. In addition to this journal the Institute puts out a number of other regular publications. The Institute issued in 1954 its first regular monthly publication in English, called the *Bulletin*. Other publications in English are the *Ukrainian Review*, the *Byelo-Russian Review*, the *Caucasian Review*, the *Arabic Review*, the *East Turkic Review*, *Studies on the Soviet Union*, and some 75 different monographs, some of which are in English. Of the Institute publications, the monthly *Bulletin* has the widest circulation. It is now in most libraries, and its articles are cited extensively by such scholarly journals as the *American Political Science Review*, the *American Economics Review*, etc., and by such popular journals as *Life* and the *New York Times*.

The burgeoning of these Institute publications and the increased standing of the Institute has been due in part to the generous support the Institute has had from its American benefactors. In 1953, the American friends and supporters of the Munich Institute decided to establish a closer relationship between the emigré scholars in the Institute and the American scholarly world. An American professor of Russian affairs received a leave of absence for 18 months from his university post and served for that time as adviser to the Institute. He brought into the Institute, American editors, librarians, bibliographers, translators, and editorial assistants. This staff worked in cooperation with the emigré scholars in an academic partnership. Most of the emigré scholars did not read Western European languages, except for a few who know some German. None of them knew English, and therefore none of them had any knowledge in these early years of the Institute about what was going on in the United States in the field of Russian studies. The American staff of the Institute conducted individual seminars with the emigré researchers to bring them up to date in scholarship. All of the American members of the Institute staff were trained in spoken and written Russian, and many also had academic training in Russian area studies in the United States.

The liaison work of the Institute with the American scholarly world was facilitated in 1954 with the appointment of a full-time person in New York City to represent the Institute in its relations with American scholars and American scholarly societies. This person, along with the present Institute adviser, attends many of the annual meetings of the American learned societies in the humanities and social sciences.

One of the continuing problems of the Munich Institute has been the integration of the non-Great Russian Soviet nationalities in the work of the Institute. This has been alleviated since 1954 when the charter of the Institute was reorganized to include the non-Great Russian nationalities—the Ukrainians, the Byelo-Russians, the Turkic and Caucasian peoples who are Soviet refugees—besides the Great Russians, who make up the bulk of the emigration. The Institute membership now totals over three hundred refugee scholars in Europe and America.

Perhaps the profile of Chinese emigration in Taiwan does not reflect the same degree of ethnic and national diversification from the homeland as does the Soviet emigration, but the lesson to be learned from the Munich experience might be revealing. Heterogeneous cultural groups can work together in cooperative scholarship if the organizational and research facilities are adequate for the individual scholars.

The organization of the Munich Institute consists of a General Assembly of all emigré scholars. This body meets annually and is open to all scholars from the emigration. Not all of them attend the annual meetings, but a large number of those in Europe do attend. It has been the practice to hold the annual meeting of the General Assembly in the same week as the annual academic conference of the Institute, which discusses some general research theme, drawing in the humanities and the social sciences. At the meeting of the General Assembly, the Learned Council of the Institute is elected as well as the Institute Director and Secretary. The composition of the Learned Council reflects the diversity of its members. The directors of the Institute also represent a variety of disciplines. The first director was an architect, the second an historian, the third an economist, and the present director a medical scientist.

To bring an academic group of men and women together and have them work together productively requires a smooth functioning organization which is both democratic in its structure and administratively efficient in its operation, plus leadership backed by adequate financial support. Each of these ingredients, important as it is by itself, can only serve its purpose if the remaining ones are also present. When this academic group consists of a partnership with representatives from different cultures, as the Soviet emigrés and the Americans, then the problem is compounded. The Munich Institute, over the past ten years, seems to have developed into a relatively successful partnership. American participation in the Institute operates on the advising of policies and programs, the rendering of financial assistance, identification in honorary Institute memberships, and in taking an active part in the substantive work of the Institute conferences. For a number of years, several young American scholars in Russian studies have met with Soviet emigré scholars in short conferences on special aspects of Soviet studies. Recent conferences have covered such topics as Soviet literature, education, foreign policy, economic planning, etc. Not all of these conferences have been held in Munich. Beginning in 1953, some of the conferences have been held in New York City and have brought together emigré scholars in the United States with American scholars interested in Soviet studies. Conference proceedings are published in both Russian and English.

Another activity of the Munich Institute which might be of interest to those concerned with the problem of Sino-American intellectual cooperation is the maintenance of a research center for bringing together visiting American scholars and Soviet emigré scholars. Over the past ten years the Munich Institute has built up an impressive library and research center. Located in a building constructed for the Institute in the central part of Munich, the library of the Institute now contains some 35,000 volumes of books and 10,000 volumes of periodicals on Russia and the Soviet Union. The library is, in the opinion of many European and American specialists on the USSR, the best library in Germany on the Soviet Union and one of the very best in Europe. The library uses the Library of Congress classification system, installed by technicians loaned by that institution. The Munich Institute is rich not only in its library holdings on the Soviet Union, but also in its extensive set of research files on the USSR. Extensive biographical and economic files are maintained in the research division of the Institute. Biographical directories and statistical yearbooks put much of this data together for the English-reading world.

In the preparation of books published by the Institute, the partnership between American and emigré scholarship has been very active. The present adviser to the Institute worked for some time with one of the emigré scholars of the Institute on a study of Stalin and the history of the Communist Party. Frederick A. Praeger has recently published this book. A young American professor of Russian history, who has done considerable research on the Komsomol, collaborated with a group of ex-Soviet Komsomol members in their personal histories while spending a summer at the Institute. This study has recently been published.

While the problems of the Chinese intellectuals on Taiwan are in the main very different from those of many of the Soviet emigré scholars in Europe and the United States, there are, nevertheless, some similarities which might make the experiences and accomplishments of the Munich Institute worthy of consideration. Since the Chinese intellectuals on Taiwan are refugees from or nonreturnees to Communist China, a research center staffed by them will have to do everything possible to resist the pressures to make it in any way a political or propaganda organization. The experience of the Munich Institute has demonstrated that the more it concentrated on scholarship, the more prestige and respect it commanded from its public. Although the Taiwan center would operate in a non-Communist atmosphere, as the Munich Institute operates in a free country, its researchers undoubtedly are always aware of the Communist world, from which they have fled or choose not to return. The Munich Institute experience proved that the leadership for objectivity, especially in the social sciences, must come from the American partners in the enterprise. If the researchers approach their subjects with the philosophy of pushing back the frontiers of ignorance and developing the scientific truth, they cannot be charged with propaganda. They will discover, however, that there is much about Communist China which is not all black and therefore will be obliged to reveal much which is neither white nor black.

The establishment of a research center for the social sciences and the humanities on Taiwan on a joint Chinese-American basis involves the retooling of many of the older Chinese scholars to do modern research. The Munich Institute experience showed that it was necessary to teach the older Soviet emigré scholars what research techniques, methodology, and bibliography existed in the West about subjects on which they were working. While this problem is not shared by the Taiwan scholars in a similar degree, there must be some evidence of it in kind because they have been out of communication with their scholarly antecedents for ten years. This again is an instance of what the American scholars can do for the Taiwan scholars.

The Chinese scholars on Taiwan will ultimately become superannuated, and the reservoir of scholarship will wither away unless something is done to replenish the scholarly resources. This is a problem faced by the Munich Institute. One remedy has been to award fellowships to younger scholars of promise, to work under the older scholars. Another solution has been to allow the potential younger scholars to study abroad for two or three years and then return to the Institute. This latter solution often backfires and the potential scholar for the Institute or center decides to locate permanently abroad. This can be prevented by making the incentives for work and the prestige through identification with the Institute or center so high as to draw most of the younger emigré scholars back. In several remarkable cases, the Munich Institute has been successful in doing this.

SOME PROBLEMS AND POSSIBILITIES IN BIBLIOGRAPHY AND LIBRARY RESOURCES

by EDWIN G. BEAL, JR., AND T. L. YUAN
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Though the activities of a large modern library are numerous and diverse, virtually all of them can be summarized under two basic functions: To acquire the record—for the most part the printed record—of past civiliztion, and to make such a record accessible for studying the past, understanding the present, and planning for the future. Though few would challenge such generalities, the application of these principles is more obvious in some respects than it is in others; and in the various fields of endeavor, accomplishment has inevitably been uneven.[1] The several projects which we have outlined below represent some areas where important work needs to be done.

1. *Indexes to periodical literature*

There is a genuine need for a better control of periodical articles relating to China, through the production of a work comparable to the *Index Islamicus, 1906-1955, a catalog of articles on Islamic subjects in periodicals and other collective publications,* compiled by J. D. Pearson, Librarian of the School of Oriental and African Studies, University of London (Cambridge, W. Heffer, 1958). That index is the product of a careful examination of 510 periodicals, 120 Festschriften, and 70 volumes of congress proceedings; it comprises 26,076 entries for the 50 years it covers. Probably the cumulative index to periodical articles on China should take up where the *Supplement* to Cordier's *Bibliotheca Sinica* ends (*circa* 1922; this volume, which was published in 1924, contains only a very few entries for 1923). Such a periodical index would be a companion to Dr. T. L. Yuan's *China in Western Literature* (New Haven, Far Eastern Publications, Yale University, 1958), which is a guide to monographs on China published in the languages of Western Europe from 1921 to 1957. In working on a cumulative periodical index, full use should be made of the extensive work done by Earl Pritchard, Gussie Gaskill, and Howard Linton in the *Bulletin of Far Eastern Bibliography,* and subsequently in the bibliographical sections of the *Far Eastern Quarterly* and the *Journal of Asian Studies.* Use should likewise be made of the listings in the English edition of the *Quarterly Bulletin of Chinese Bibliography* (Peiping, National Library of Peiping, 1934-47), and of the Western-language sections of the *Annual Bibliography of Oriental Studies (Tōyōshi kenkyū bunken ruimoku),* published in Kyoto since 1935, at first by the *Tōhō Bunka Gakuin,* and later by the Research Institute of Humanistic Science, Kyoto University. All of these together, however, offer only a partial solution to the problem, for several reasons: (1) They give no coverage between 1920 and 1934. (2) The degree of coverage has varied widely through the years, depending in part upon whose cooperation in covering material the hard-working editors were able to depend (this was especially true during the war years). (3) The categories under which the classification is made are very broad and have changed over the years. (4) The absence of any cumulation makes it necessary for anyone searching for articles on a subject to search through 27 years of issues—issues which much of the time appeared in four separate sections per year. The entries should be made, and the classifications assigned, however, directly from an examination of the articles themselves; it is not enough simply to copy the entries which have appeared in other indexes and lists, regardless of how useful and suggestive these may be to the compiler.

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[1] It might be helpful to outline the present state of Far Eastern collections in the United States. This, however, would require a good deal of space, and it has to a considerable extent already been done by two of our colleagues. See G. Raymond Nunn and T. H. Tsien, "Far Eastern Resources in American Libraries," in *The Library Quarterly,* vol. 29 no. 1 (January, 1959). pp. 27-42.

We suggest, therefore, that one tool which is very much needed for Far Eastern studies is a well-defined and adequately supported cumulative index of periodical articles pertaining to China which have appeared in Western languages during the years 1921 through 1960. If properly executed, such an index would be exceedingly useful to everyone seriously interested in China. It would bring under control a vast amount of work done in the past forty years, and make it much more accessible to Chinese scholars and to Western students alike. It would be useful to the undergraduate writing his first term-paper on China; to the graduate student who, in choosing a dissertation subject, needs to know clearly what work has already been done; to the faculty member in preparing lectures for his courses; and to the research worker. It would be useful in public as well as research libraries.

It is reported that a good deal of work toward such a cumulative index was done by the late Dr. C. W. Taam, who served as Curator of the Oriental Library, University of Hawaii, until his death in 1956. We have no details concerning the degree to which this work had progressed, or concerning the present status of the manuscript and its availability for further development; but an effort should be made to answer these questions before further work is done along this line.

There seems to be a similar need for a fuller control of periodical articles in Chinese. The *Chung-wên tsa-chih so-yin* (Canton, Lingnan University, 1935) refers to no articles published after 1929. The *Ch'i-kan so-yin* (Shanghai, The China Library Service) covers only from November, 1933, to July, 1937. Though there are specialized indexes, for limited periods, to articles on literature, geography, education, Chinese studies *(Kuo-hsüeh),* and agriculture, there seems to have been no further attempt at comprehensive indexing until March, 1955, when a current index to mainland newspapers and periodicals began to appear in Shanghai under the title *Ch'üan-kuo chu-yao pao-k'an tzŭ-liao so-yin.* There seems to be no index to periodical articles published on the mainland between 1937 and 1949, nor to those published in Free China since 1949. The scope of such indexes, and the methods to be used in their compilation, are matters to be decided by Chinese scholars. American students of China, however, will be grateful for anything they do along this line.

2. *Reproduction of source materials in Taiwan*

In the libraries of Free China there is a large quantity of rare, and in some cases unique, material which should be made available to students of China—both in Taiwan and abroad—by photographic reproduction.

During the Second World War, when Dr. Hu Shih was Ambassador to the United States, the Chinese Government deposited in the Library of Congress 102 cases which contained almost three thousand titles of rare books from the National Library of Peiping. In return for giving these works protection during the war, the Library was given permission to microfilm them. A total of 2,720 works were filmed, which resulted in 1,063 reels of film.[2] Complete sets of these films have been purchased by various institutions throughout the world; sets are to be found in Honolulu, in Cambridge, in Rome, in Leiden, and in other centers. In fulfilling an agreement made during the war years, the Library also recently presented a complete set to the Chinese Government; we understand this set has been deposited in the Academia Sinica near Taipei.

The success of this undertaking has led to the proposal that some of the rare material now in Taiwan should be microfilmed and thus made available in permanent form throughout the world. In 1952, Dr. Hu and Dr. Arthur W. Hummel, who was then Chief of the Orientalia Division in the Library of Congress, worked together on such a plan. A committee of scholars representing such institutions as the National Taiwan University, the Palace Museum, the National Central Library, and the Academia Sinica was organized in Taipei. A budget was drawn up in the Library, and a request was made early in 1953 for foundation assistance. No funds were ever made available for the project; but the idea has great merit, and it is to be hoped that some way will be found to achieve its purpose.

When Mr. Wang Yun-wu visited the United States in 1957 he discussed with several of us the possibility of reproducing these rare books and some manuscripts (*e.g.*, the *Li-tai pao-an,* of which the sole extant copy survives in the Library of the National Taiwan University) by the process of photo-offset, with the purpose of producing another series comparable to the *Ssŭ-pu ts'ung-k'an,* which was published under his general directorship by the Commercial Press, Shanghai, during the years 1929-36. We hold the opinion that in dealing with rare books and manuscripts for which wide distribution is desired photo-offset reproduction is to be preferred to microfilming.[3] One advantage is that reproduced volumes are always easier to use than microfilm; a second is that a sufficient number of copies can be made to give a much wider distribution. A third consideration is that there is now in Taiwan adequate equipment to make excellent photo-offset reproductions (see, for example, the archives pertaining to maritime defenses, published under the title *Hai-fang tang,* and reproduced by the I-wên Yin-shu-kuan for the Academia Sinica's Institute of Modern History); whereas to conduct any large-scale microfilming project in Taiwan would require a substantial investment in laboratory filming and processing equipment. In any case, we can still hope that funds from some source will become available to reproduce these works and make them generally available both to scholars in Taiwan and to students of China abroad. Such reproduction would also serve as insurance against deterioration of the original document through mildew and insects; it is unfortunate, though unavoidable, that the conditions under which they are kept (mostly in Taichung) are less than ideal.[4] The publication by the National Central Library during recent years of catalogs of rare books,[5] of Sung editions,[6] and of local histories[7] would be of much aid in conducting such a project if funds could be secured. In late 1959 and early 1960 the Library of Congress drew up a proposal to use, under the terms of Public Law 480, the equivalent in Taiwan currency credits of approximately US $100,000, for the reproduction by offset process of these rare materials in Taiwan. In passing the 1961 budget, however, the Congress decided against granting funds, at least for fiscal 1961, for any of the projects which the Library had proposed under the terms of that law.

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[2] Draft bibliographical notices by Wang Chung-min fill another three reels. Reproductions of a packing list, a roughly classified shelf-list, and a set of cards arranged by the number of strokes fill several more. Since several of the 1,063 reels are divided into two parts, the grand total is 1,074 reels.

[3] Certain types of material, for one reason or another, are probably better suited to

It might be added that there are in Japan a number of rare Chinese works which also should be made available for use in other places. In 1953 and 1954 the Library of Congress microfilmed in Japan 37 local histories of the

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microfilming. Among these would be included unedited archives (including files of correspondence), newspapers, and several others. These, however, are not the types of material with which we are concerned here.

[4] It is true, of course, that several series of reproductions are now being issued in Taiwan, the most prominent of which are probably the *Ssŭ-k'u shan-pên ts'ung-shu* and the *Kuo-hsüeh piao-chün tien-chi* (both by the I-wên Yin-shu-kuan). According to "A Bibliography of Chinese Classics and Related Works Printed in Taiwan," compiled by the National Central Library, however, both of these series contain a considerable number of standard works which had been reproduced previously or published in another form. See *Chinese Culture,* vol. 2, no. 3 (Dec., 1959), pp. 124-144, esp. pp. 140-141. On these two pages are listed 36 works which the *Ssŭ-k'u shan-pên ts'ung-shu* has reproduced from the *Ssŭ-k'u ch'üan-shu chên-pên, ch'u-chi,* which was issued in Shanghai in 1935. Likewise, the *Kuo-hsüeh piao-chün tien-chi* reproduces the *Chia-ku wên-pien* of Sun Hai-po, which was published in Peiping by the Harvard-Yenching Institute in 1934. This is doubtless very useful and appropriate in Taiwan, where the older series of reproductions are scarce and hard to get; but it is not what we have in mind here. We hope that in the future an effort will be made to direct these series to the reproduction of works which are not otherwise available—such as Sung, Yüan, and Ming editions (including local histories) and manuscripts.

[5] *Kuo-li Chung-yang T'u-shu-kuan shan-pên shu-mu* (Taipei, 1957-58. 3 vols.).

[6] *Kuo-li Chung-yang T'u-shu-kuan Sung-pên t'u-lu* (Taipei, 1958); and *T'ai-wan kung-ts'ang Sung-Yüan-pên lien-ho mu-lu* (Taipei, 1955).

[7] *T'ai-wan kung-ts'ang fang-chih lien-ho mu-lu* (Taipei, 1957).

Ming period. Funds were exhausted at this point, and the work was never continued. But many more rare *fang-chih* are to be found in leading Japanese libraries. Fortunately these are listed for us in the draft union list of Chinese local histories in Japanese libraries, compiled and published by the National Diet Library.[8]

The above are long-range projects.

3. *Some smaller but useful undertakings.*

a. The preparation of an up-to-date biographical register of individuals prominent in Free China. Possibly the need for this could be met by issuing a revised and enlarged edition of the *Chung-hua min-kuo jên-shih lu,* which was published in 1953.

b. Preparation and publication in book form of a list of the above-mentioned microfilms of rare books from the National Library of Peiping, anl a title index to them.

c. An annual index to important periodical articles published in Taiwan, to serve as a companion to the *Chung-hua min-kuo ch'u-pan t'u-shu mu-lu,* of which four volumes have been published by the National Central Library.

d. At least an index by titles to the three-volume catalog of rare books *(Kuo-li Chung-yang t'u-shu kuan shan-pên shu-mu)* published by the National Central Library in 1957-58. We were informed by Dr. Chiang Fu-ts'ung, Director of that Library, that such an index was in progress some time ago, but it seems not to have been completed.

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[8] Kokuritsu Kokkai Toshokan, *Tokyo, Chūgoku chihōshi sōmokuroku-kō* Tokyo, 1950- .

COMMENTS ON SINO-AMERICAN INTELLECTUAL COOPERATION

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Cooperation in agricultural sciences

The words "intellectual cooperation" where used in this discussion in connection with the agricultural sciences, are to be understood to mean the working together of two or more individuals for the purpose of increasing our understanding of physical and biological phenomena of importance in agriculture. Basically, of course, this is no different from intellectual cooperation in any other areas of natural science. It is emphasized, however, for several reasons.

Research in agriculture encounters numerous influences that are either less likely to operate, or more readily avoided, in other fields of research. Agriculture in large part is immediately related to man's survival. Despite the fact that agricultural production is rapidly becoming more factory-like in its operation, it is still open to numerous natural hazards. Research scientists in agriculture, therefore, are particularly subject to pressure, from producer and from government, for practical answers to difficult but urgent problems. Such problems are continually arising. They are frequently of tremendous importance to large numbers of people and to the national economy but may divert human and financial resources from fundamental research to more empirical undertakings. Judging by the number of as yet unsolved problems, which, at many times in the past, have been attacked by empirical means, it is clear that the strictly empirical approach cannot be depended upon. These considerations indicate that the word "research," which has come to be used for a wide range of investigational activities in agriculture, includes some which should be regarded as less appropriate than others for intellectual cooperation. Provision for cooperation in agricultural investigations must include provision for fundamental research.

Intellectual cooperation with Taiwan: Problems and Implementation

The newly arrived American in Taiwan rapidly becomes conscious of its high population density, its large proportion of hilly and rugged terrain, and the state of military preparedness of the Island. These things must be recognized when planning intellectual cooperation in the agricultural sciences. The first two lead to demands for the solution of pressing problems of food production and may foster a certain lack of sympathy with the unhurried approach of the scientist engaged in fundamental research. All tend to make for a shortage of funds. Although the general problem of financial support for research is not unusual and is not peculiar to Taiwan, existing circumstances there make it particularly noticeable.

It is axiomatic that intellectual cooperation is at its best when capable and responsible individuals who wish to work together on a problem of mutual interest are provided with a favorable environment and free opportunity to do so in their own way. In so far as progress in research is concerned this means that exchange of ideas, execution of required experiments, collection of materials, analysis, interpretation, and publication of results should be made as direct as possible and subject to the minimum amount of regulations and red tape. Cooperators also require independent authority to purchase, or arrange for access to, necessary equipment and facilities; to engage in more or less travel for purposes directly connected with the cooperative research; and, when necessary, to obtain technical or unskilled assistance and services.

Cooperation in the form of conferences, discussions, seminars and courses of lectures is less expensive and generally in less danger of delay by paper work. In the agricultural sciences, however, it is believed that present emphasis should be placed on cooperation in soundly conceived, well conducted experimental research in laboratory and field. During recent years, slender financial support and the heavy teaching loads of the faculties in Taiwan universities have greatly curtailed such research in Taiwan.

When agreement has been reached upon the basic conditions governing the working plan for cooperation, it would be desirable that these be given early publicity in many institutions in Taiwan and the United States. Universities and research institutions in both countries could then exchange lists of individuals wishing to participate, together with their announced special interests and lists of their publications in the proposed fields. It would be hoped that this would initiate an exchange of correspondence between individuals, of statements of facilities, and of working materials available, and would lead to an exchange of visits, where necessary or desirable, and a final joint decision concerning the proposed subject of active research if that, rather than teaching and conferences, is to be undertaken. The proposals would then be submitted for approval to a review committee, together with needs and estimated costs to provide bases for grants-in-aid. A joint report on the work done would be required within a reasonable time after completion of the active cooperative period.

Participation which takes the form of exchange lectureships, doctoral and post-doctoral research fellowships, and consultantships, should provide ample time for thorough familiarization by the visitor with the principles and practices of operation of the department to which he is attached as well as with its current research programs and procedures and unique or special research opportunities.

As a result of their cooperative activities with either Taiwan or United States scientists, participants should experience no setbacks at their home institutions in respect to consideration for normal advancement and retirement privileges. Parent institutions should encourage participation of high caliber individuals up to periods of one year by granting leaves of absence with pay, or sabbatical leaves. Where possible, and in order to stimulate interest, additional inducements might be offered.

Research topics in agriculture suitable for Taiwan-American cooperation

Mature scientists will decide upon their own cooperative researches. The following incomplete list is intended to illustrate the scope which the Taiwan environment offers to research scientists in agriculture. In several respects Taiwan presents either unique or uncommon opportunities for research.

1. Integrated chemical and biological control of insect populations.
2. Systematics of Taiwan insects.
3. Behavior and biology of important naturally occurring plant pathogens common to Taiwan and America.
4. Climatic and long-time cultivation influences on soil nitrogen.
5. Organic matter and nitrogen transformation in paddy soils under controlled irrigation.
6. Soil formation in relation to litho-, climo-, and biosequences.
7. Accretion of cyclic sodium in Taiwan coastal and interior soils.
8. Plant nutrient uptake in relation to the free energy of soil moisture.
9. Coordinated researches directed at permanently increased production of protein of high nutritional quality.
10. Temperature and humidity influences on the physiology of domestic farm animals.
11. Research on plants (*e.g.*, water chestnuts, bamboo sprouts, pomelos) and other biological materials that are either unique to Taiwan or rarely occur elsewhere.

THE PRESENTATION OF DEMOCRATIC VALUES TO THE CHINESE PUBLIC

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The presentation of Western democratic values to an ancient oriental culture like that of the Chinese is certainly by no means a simple task. Just take for example the key terms: democracy, freedom, equality, and human rights. None of these terms has its exact equivalent in Chinese. We have to coin new terms or simply give transliterations to introduce them to our public. But these processes usually fail to convey any actual meaning. For words like freedom and democracy are not simple object-words like radio and automobile which can be defined ostensively. Freedom and democracy refer to highly complicated ways of life. To give these living processes an adequate description or an accurate interpretation is no easy job. It takes Tocquevilles and Bryces to do it in any satisfactory manner. Even if this is competently done, how much of an impression it can make on our people still remains doubtful. There is a dilemma here. Because freedom and democracy are empirical, they can hardly be understood unless they are actually experienced, but how can a people begin a new experiment of democratic life without some rudimentary understanding of it?

We confront another practical difficulty when we try to depict Western democratic ideals in our own words. Philosophers of freedom and democracy in the West do not agree among themselves. There are numbers of conflicting theories of the state and government. There is not a single work which can claim to be representative of democratic philosophy. We do not know for sure which author to follow or which work to choose. Democracy does not have, nor does it permit itself to have, its own bible. But this puts democracy at a great disadvantage in competing with communism in making new converts. Communism as a doctrine is by far more comprehensive and compact. It supplies a total Weltanschauung. It is not merely a philosophy of materialism. It offers a fighting faith. Its integral systems of dogmas, cloaked under pseudo-scientific propositions, like the "Manifesto," can be grasped all at once. It is just the kind of panacea our young enthusiasts are longing for. They want to bring a quick relief to the agonies that our people are suffering. They want to work miracles. They cannot afford to spend years and years studying scattered and lukewarm interpretations of democracy. Besides, there are no good translations of classics on democracy available. They cannot hope to read Locke, Jefferson, and Mill in the original texts. Basic principles of democracy as a coherent doctrine are practically inaccessible to them. There is nothing more deplorable than to see our best youths disappointed with us and turning to communism for a secular religion.

There are, on the other hand, among the Chinese intellectuals, conservatives who are skeptical about Western democratic values. They argue that Western democracy is entirely foreign to us, so the chance for it to grow on this soil is very slight. They think that fortunately this is the case. For if we should admit that Western values are superior and must be adopted, what would we catch at as a straw before we are submerged? They, therefore, fanatically eulogize our past and extoll our tradition. They emphasize nationalism which appeals directly to the deeper emotions and the frustrated feelings of our young and old.

This phase of the problem, we must frankly confess, has been overlooked. We had practically made no serious studies of our historical, cultural, and social background before we adopted the new constitution and declared to the world that we had become on a national scale, in the twinkling of an eye, democratic in our political life. What are the social pre-requisites to a successful functioning of democracy? What conditions are congenial and what are detrimental to its development? What are the most suitable places, the poverty stricken villages or the rapidly modernizing urban centers, to start, on an experimental basis, democratic self-government? Are our educational, economic, and family systems favourable to democracy? What new operative ideals are needed to effect a real working of a free political life? How are these pre-political reforms to be achieved? All these questions should be studied and answered by sociologists or political scientists before any wise recommendation could be made regarding the democratization of China.

These are the main difficulties in presenting democracy as a doctrine. There are also technical difficulties. Many of the "techniques of democracy," which are taken for granted in the West, remain to be mastered by us. Take parliamentary law for example. It has been worked out for hundreds of years in England and America. The basic ideas of the democratic way are all implied in it. People practice it whenever they hold a meeting. It is so firmly "internalized" that it has already become their second nature. They are no longer conscious of its primary importance to the working of democracy. But it is completely different with us. We have never had the habit of holding mass meetings to settle public affairs. When we held meetings at all, we had no formal and elaborate rules to follow. In recent years meetings have been more common. But democratic rules of procedure are not observed in these meetings. A strong chairman usually exercises extraordinary prerogative powers. He gives "lecture" as he pleases right in the chair. He draws conclusions and imposes his preconceived ideas on the members present. If a weak chairman presides, then chaos results. Order is not maintained and time is wasted. Dr. Sun Yat-sen is certainly right in calling parliamentary law "the first step to civil rights." One of the excellent methods to present Western democratic principles to our people is to teach them these rules of order.

Voting as a franchise is also Western in origin. The secret ballot was unknown in China. We visited in Peiping many of the voting places during the local and national elections after World War II. We found that there were not even voting booths where the voters could mark the ballots secretly. Practically no voters understood the idea of secrecy. They showed their marked ballots to any person who cared to know the contents. Some people asked for proxy voting though they were themselves perfectly able to vote. Even in our constitution the term "secret ballot" is not adopted. It uses instead a very ambiguous term which literally means "put down no name voting." The significance of the Australian ballot as an effective method of popular control of political power is not understood even among the intellectuals, not to say the ignorant masses. But how can democratic values be appreciated if secret ballot is not even adopted? Dr. Hu Shih used to say some thirty years ago that democracy is kindergarten politics. He certainly does not mean by that that democracy is immature. What he really means is that democracy can be learned from the very beginning and in a graduated course. Secret voting and parliamentary law are just these kindergarten courses. But can our American friends imagine how much effort is needed in order to make our millions of people of all walks of life understand and further learn even these simple techniques of democracy?

So the difficulties we meet with in presenting Western democratic values to our people are stupendous. These difficulties can only be overcome by more genuine education. Here is an area where we need very badly the help and cooperation of American universities. Some concrete suggestions are tentatively made as follows:

1. Reinforcement of the teaching of basic courses in social sciences in the universities on Taiwan. Social sciences certainly do not prosper here. The general environment is not favorable. The teaching of basic courses, such as histories of Western political, economic, and social theories, are especially weak. Fewer and fewer scholars are working in these fields. Most of our best minds have gone to the natural sciences. Those who are engaged in social studies are more interested in their practical sides. Almost all the universities and colleges in Free China have difficulty in getting teachers keenly interested in theoretical subjects. I really do not see how university education can be carried on if these fundamental courses are not well provided for. It is therefore suggested here that first-rate professors of social sciences be sent to Taiwan, not only to take up the teaching of these basic courses, but also to revive interest in the studies of these subjects.

2. Translation of Western classics of social sciences into Chinese. A translator ought to be given at least two or three years of time to work carefully on the text chosen and other standard works related to it. A part of his teaching load ought to be curtailed. Further, he ought to be offered chances to consult with American scholars on the same line and to make use of library facilities in the States. The translation should be preceded by an elaborate introduction. Annotations, notes, and a bibliography should also be included.

3. Systematic presentation in Chinese of great thinkers, like Locke and Jefferson, and of basic Western democratic ideas and institutions. Close cooperation in this area between Chinese writers and American scholars is especially necessary. Those who take up this kind of creative work ought to be allowed a longer time to stay in the States for discussion with pro-

fessors interested in the same problems, or for closer observation of the working of governmental and social institutions there. On the other hand, American scholars who are interested in the spread of democracy to the East ought to have chances to visit China in order to study our general background.

A joint committee composed of both Chinese and American scholars should be formed to make policies concerning the teaching of social sciences, the selection of classical works to be translated, and the implementation of writing projects. Care ought to be taken so that the work to be done under this plan will form a coherent whole.

4. Establishment of an institute to make general social surveys. It should be limited to pure research, and its recommendations should be nonpolitical in nature. For example, scholars, both Chinese and American, working together in this institute, basing their findings of facts on the spot and making use of American experience, may draw up model parliamentary laws, differing in degrees of detail, and model electoral procedures. The institute may also frame model city charters for our cities to try out. It may recommend different systems of representation and different methods of nomination. It may choose a "Middletown" as an experimental station to improve city planning, administration, housing, public health, and so on.

In conclusion, only mutual aid and close cooperation provide a basis for better communication between the two cultures. And it is not enough just to turn our "cultural desert" into a fertile land. We have a much harder battle to fight together. There is a third front beside the military and the economic ones in the struggle with communism. This is the ideological front in which the universities of both countries must play a key role. Let us respond, without any further hesitation and delay, to this call!

RESEARCH OPPORTUNITIES FOR ANTHROPOLOGY AND ITS RELATED SCIENCES IN TAIWAN

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Anthropology, ethnology, and sociology, like some other disciplines, such as geology, botany, and zoology, are largely dependent upon knowledge of local data. In this article, I wish to discuss the fields of study in anthropology and its related sciences and suggest a possible way for Sino-American joint research in Taiwan.

I will discuss the research opportunities in Taiwan under three headings: 1. History of the Island; 2. Aboriginal Culture; and 3. The Han People.

HISTORY OF THE ISLAND

If the main theme of the history of the China Mainland during the last two thousand years may be said to be the struggles between the north and the south, the history of Taiwan, which lies in its periphery, is quite different in type. Being a part of the Island Arcs of Eastern Asia, it came into contact with the European powers earlier than did the continental part of China. (In the year 1517, the Portuguese seamen who sailed by the island, named it "Ihla Formosa.") For this reason, we may say that the history of Taiwan is a combination of that of the Eastern Asiatic Continent and the Southeast Asiatic Archipelago.

Just as the Americas were originally inhabited by the Indians, Taiwan, before the Chinese migrated into the island, was peopled by aborigines who are mainly Malayo-Polynesian in stock. Racially and culturally, these aborigines form the lower stratum in Taiwan. The Liu-chiu Kuo in Sui-su are believed by some scholars to refer to Taiwan, but it is definitely known that there were no Chinese settled on the island at that time. The Chinese contact, as recorded by the old chroniclers, may be traced up to the Southern Sung dynasty. In 1291-1292 (the 28th-29th years of Chih-yuan) and 1297 (the 3rd year of Yuan-chen) the Yuan reign had tried to conquer Taiwan, but it was not until about the time of Columbus' discovery of the New World that the Chinese who lived on the opposite side of the Strait began to move to Taiwan. In 1604 (the 32nd year of Wan-li) a Dutchman called Wybrand van Waewijck tried without success to occupy the Pescadores or Peng-hu. But afterward, in 1622 (the 2nd year of Tien-chi) the Dutch occupied the islands. Two years later, the Dutch had been driven away from the Pescadores, but the Ming government had allowed them to stay in Taiwan. There the Dutch built Fort Zeelandia as their administrative headquarters and became the temporary rulers of the island. In this period, they drove away the Spaniards who had occupied Keelung and Tamshui on the northern part of the island for a short period of time.

The Dutch stayed in southern Taiwan for 37 years. In 1661, Koxinga, a statesman of the overthrown Ming dynasty, left the China Mainland, and tried to occupy Taiwan as the base for recovering the mainland and reestablishing the Ming dynasty. On April 30 of that year, he came with his troops to the island, and on February 1 of the next year, the Dutch governor Frederick Coyett surrendered. Thus began the period of the Southern Ming. Since then, the Chinese have moved in in great numbers, and have gradually come to outnumber the aboriginal population, and have formed the upper stratum, the stratum of the Chinese.

It is very unfortunate that Koxinga did not live long enough to fulfill his wishes; he died at the age of 39, the year after he came to Taiwan. The death of Koxinga weakened the strength of the Southern Ming. In 1683 (the 37th year of Yung-li) his grandson Chen K'e-shuang surrendered to Shih Lang, and thus ended the Southern Ming dynasty.

The people who followed Koxinga and came to Taiwan were not willing to submit themselves to the Ch'ing reign in the beginning; they rebelled and rose up against the Ch'ing government quite often. But the Ch'ing government did send some of her best statesmen to Taiwan. Among them, Liu Ming-chuan, the first governor of the Province, was the most prominent. Liu had tried to modernize Taiwan along European lines. Unfortunately he was opposed by the conservatives and finally resigned from his office in 1891 (the 17th year of Kuan-shu).

In 1895 (the 21st year of Kuan-shu), as a result of the Sino-Japanese War, Taiwan was ceded to Japan by the Ch'ing dynasty, and after the Second World War it was restored to China. As a result of the isolation of the island from the mainland and the impact of Japanese culture in this period of transformation, we find some local development of Chinese culture in Taiwan. This, I will discuss in a later paragraph.

In the foregoing paragraphs, I have briefly described the history of Taiwan with special emphasis on its cultural and racial contacts. My aim is to point out that the history of Taiwan, though short, is not a simple one. In Taiwan, as stated above, there are three cultural and racial strata: At the bottom we have the aboriginal; on the top, we have the Chinese; and between them, we may safely assume a mixture. Each of these strata again consists of a group of linguistically and culturally related tribes of peoples. Besides these three cultural and racial strata, we have some other peoples and cultures who appear in the scene in Taiwan, they were the Dutch, the Spanish, and the Japanese. Their brief stays, though insufficient to form "strata," left their influences upon the Taiwan culture as a whole.

ABORIGINAL CULTURE

I should like to compare China with America because we are discussing Sino-American cooperation. As we know, there are some three or four hundred thousand Indians living in North America (north of the Rio Grande), and most of them have been acculturated and have adapted themselves to modern society and are no more "primitive" in the real sense of the word. Probably this is why many American anthropologists have shifted their interests to modern community and personality studies. Quite in contrast to this, in the central mountainous and eastern coastal regions of Taiwan, we have some 200,000 aborigines. To compare the 200,000 aborigines with 10 million Chinese on the island, they certainly constitute only a small part of the total population, but this proportion is much greater than that of the American Indian to the White people of the United States. Aborigines of Taiwan are not only greater in number, but most of them still remain in a culturo-economic stage which is considered by anthropologists as an "ideal" object for study. And if we compare the volume of works done in North America with those done in Taiwan, we will naturally think that research undertaken among the latter is more necessary.

In the following I will describe the Aboriginal Culture of Taiwan in general.

The Taiwan aborigines may be grouped according to their cultures under ten tribal names: Atayal, Saisiat, Bunun, Thao, Tsou, Rukai, Paiwan, Puyuma, Ami, and Yami. They may also be divided according to their dialects into 13 groups—the Atayal may be divided into the Atayal proper and the Seedeq; and the Tsou, into the Tsou proper, the Kanakanabu, and the Saaroa.

In this article, because of the limited space, I wish only to point out the complexity and heterogeneity of the aboriginal culture. With regard to social institutions, we find that six groups of them possess a clan system, four of them (the Saisiat, the Bunun, the Thao, and the Tsou) are patrilineal; and the other two (the Ami and the Puyuma) are matrilineal. Among the southern tribes (the Rukai, the Paiwan, and the Puyuma) we find a feudalistic class system; but among the Botel Tobago Islanders (the Yami) we find gerontocracy. Other social institutions still well preserved among them are: dual organization or moiety system (the Ami, the Puyuma, and the Rukai), and parent-child linkage naming system (the Atayal, the Saisiat, the Ami, and the Tsou), teknonymy (the Yami), house-name system (the Paiwan and the Rukai), and others.

With regard to their material culture, we find among them: semi-subterranean dwellings (the Atayal and the Bunun), pile-buildings (granaries of various tribes, youth's dormitories of the Puyuma), betel-nut chewing, tobacco smoking, the horizontal backstrap loom, shell-beads, bead-work, embroidery, applique, basketry, rafts, dugout canoes, the mortar and pestle, harpoon type throwing spears, the bow and arrow, the cross-bow, the long shield, the waist knife, and others. On the religious side, all tribes are ancestor worshippers, but the southern tribes (the Paiwan and the Rukai) believe in many gods, and the eastern tribes (the Ami) have a definite genealogical relation for the various gods. Being agriculturalists, all the tribes observed agrarian rituals with some emphasis on harvest and new crop rituals. But each tribe has its special ceremonies. The *pasta'ai* (Dwarf's ceremony) of the Saisiat, the boat ceremony of the Ami, and the Five Year Ceremony of the Paiwan are all rather elaborate. Other customs worth noticing among them are: indoor burial, platform burial (the Yami), head-hunting, various kinds of taboo observation, dream omens, ornithomancy, bamboo divination (the Ami and the Puyuma), hair pulling, tooth pulling, ear-lobe piercing, and body (the Paiwan and the Rukai) and face (the Atayal and Saisiat) tattooing. It is impossible to list all important culture traits here. All I want to illustrate is that Taiwan is one of the best laboratories for anthropological studies, if we consider the size of the area these peoples occupy. Many hypotheses of anthropology could be solved or interpreted, if we only intensively study the cultures of the tribes.

To report about the present status of the Taiwan aborigines, one thing I must add is that their cultures now are undergoing rapid and severe changes. I will only give one example to illustrate this point. About sixty years ago, the aborigines were put under the Japanese government's administrative system, and since then, both the Japanese and Chinese governments have tried to unify the administration, and have urged them to give up their original socio-political institutions, but in vain. Until eight years ago I still saw the class system functioning among the southern tribes. The old system had been maintained because it had played an important role in their traditional religious ceremonies. In recent years, as a consequence of the introduction of new religions (Catholic and protestant Christianity), their old socio-political system has lost its importance and has quickly decayed. Last year, a youth from the lowest class was elected as the head of the same village which I visited eight years ago, because he is the "elder" of the new church.

By the impact of modernization, including modern technology and Christianity, the aboriginal cultures of Taiwan have undergone rapid changes that never were seen before. It is the responsibility of the anthropoligist to investigate and study them before it is too late.

THE HAN PEOPLE

As already mentioned, the migration of the Chinese, or more precisely the Han people, into Taiwan took place mainly between the seventeenth and the nineteenth centuries. If we do not include the Chinese immigration and culture contact after the restoration of the island to its mother country within these fifteen years, we may say that, after 1896, the migratory activity had completely ceased; and the island had been isolated from the mainland, not only politically and economically, but socially and culturally.

Though a period of fifty years is short when viewed from the long history of Chinese civilization, this fifty years was the period of the modernization of China. Both China and Taiwan, in this period, have been transformed from their pre-modern stage to a modern one. Because the China-mainland and Taiwan have been separated in this period of transformation, their cultures did not develop in exactly similar directions. This is why the Taiwan Chinese culture does not identify itself with that of the mainland Chinese in every aspect.

Another noteworthy point is the immigrant attributes of Taiwanese society. The history of the Chinese mainland is a history of struggles between the north and the south. Every invasion from the north has compelled the people who lived in the "middle kingdom" to move to the south, and south China has thus been exploited. In the Sung and Yuan dynasties, the southeastern provinces, the poor mountainous region of Fukien and Kwangtung, were thus developed. In the Ming dynasty, this region had become densely populated. Therefore, the people had to plan to get their living from the sea. Some of them moved southward to the Malay Archipelago and formed the major part of the overseas Chinese of this area; some of them moved eastward to Taiwan, and these are the ancestors of the present day Taiwan Chinese. As we know, immigrants are usually enterprising, energetic, and cohesive; but they are often not intellectual, cultural, and learned. Such are also the characteristics of our forefathers. Most of them were humble fishermen or farmers. Therefore they brought to the island the culture of the folk of the seventeenth-, eighteenth-, and nineteenth-century China-mainland, but not the culture of the higher stratum of Chinese civilization.

The people who migrated from southeastern China to Taiwan in the last three centuries are not of a single origin. Those who moved in earlier were mostly Hoklo or Amoy dialect speaking people. Most of them settled in the western plains and formed villages and towns. The Hoklo are estimated to number more than five million and constitute the majority of the Taiwan population. The later comers in the eighteen-nineteenth century consist of a great percentage of Hakka dialect speaking people. The Hakka are mostly concentrated in the uplands, mainly around Miaoli, Taoyuan, and Pingtung. The Hakka have a population of about one fifth of the Hoklo. There were still other groups who came to the islands before the separation. The northern Fukien dialect speaking people who came last found no vacant land for concentration. They were mostly living in cities and followed professions such as tailors, barbers, and cooks.

After the restoration of Taiwan to its mother country, the migration of the Chinese from the mainland became active again. Within these fifteen years, millions of people of different occupations from various parts of China came to live on this island. No other part of China represents the whole people and whole culture more fully than today's Taiwan; therefore, the study of this "melting-pot" of Chinese culture is not only the study of Taiwan itself, it is also a study of the inter-action of various branches of Chinese culture, and the best starting point from which to study the overseas Chinese.

PREVIOUS RESEARCH

Anthropological and sociological research on Taiwan has been undertaken by Japanese as well as Chinese scholars. Many materials have been compiled. More important works were done by the *Rinji-Taiwan-kyukan-chosakai* (Special Commission for Investigation of Taiwan Old Customs—S. Okamatsu, H. Yajima, T. Higashikawa, T. Sekiguchi, R. Mochiji, U. Mori, and others), the Ethnological Institute of Taihoku Imperial University (N. Utsurikawa, N. Miyamoto, Y. Okada, and T. Mabuchi), the Department of Archaeology and Anthropology of National Taiwan University (Li Chi, Ruey Yih-fu, Chen Shao-hsing, and Chen Chi-lu), the Institute of Ethnology of the Academia Sinica (Ling Shun-sheng and Wei Hwei-lin) and other independent scholars, such as R. Torii, Y. Ino, T. Koizuni, K. Anto, I. Okuda, K. Furuno, T. Kano, F. Fukuda, T. Kanaseki, and others. The Special Commission carried out general surveys on both the aborigines and the Chinese; the other three institutions undertook investigations and studies mainly on the mountain tribes. More ethnological works as compared to sociological works have been done. The religious side has been more or less neglected. Only in a few localities have intensive studies been undertaken.

In recent years new approaches have been introduced into Taiwanese studies. There were joint researches among the Sun-Moon Lake Thao (Chen Chi-lu and others), the Nan-chuan Saisiat (Ruey Yih-fu and Yang Shi-mei), and the Botel Tobago Yami (Wei Hwei-lin and others); community studies in Lin-pien (E. Ryan), Lu-kang (B. Gallin), and Shu-lin (Arthur Wolf). It is noteworthy that the latter three studies were undertaken by young American scholars.

For reasons we have stated above, we think studies of culture contact and culture change, intensive studies, especially on Chinese communities of various types, are most urgently needed.

A Proposal

For reasons I have stated above, I wish to propose the establishment of a training and research center for anthropology and sociology in Taiwan. The center may be attached to Taiwan University, the Academia Sinica, or as a part of the proposed Research Center for Humanities and Social Sciences.

The establishment of the center has a two-fold aim: to train research personnel, and to carry out investigations and research. Research personnel would include both Chinese and Americans. American students interested in Chinese, Southeast Asian studies or general theory in anthropology and sociology might be sent to the center for field training. American scholars with an interest in Chinese or Southeast Asian studies might be invited to the center for doing research or giving instruction. To help field investigations and research work, local graduate students might be trained to be assistants or interpreters. To maintain the investigations and research work, young scholars from Taiwan might be sent to the United States for theoretical orientation.

To complete an over-all investigation on Taiwan, localities chosen for studies must include all types of cultures and societies: one village from each of the ten aboriginal tribal groups, one or two villages of the Pingpu tribes (the aborigines who live on the plains and have been acculturated by the Chinese), two (one in the south and one in the north) of the Hakka agriculture villages, two (one in the south and one in the north) of the Hoklo agriculture villages, one fishing village, one village near a sugar plant, one or two towns, some parts of the cities, and metropolitan upper class, middle class, and lower class must be included in the project.

MODERN CHINESE LIBRARIES UNDER SINO-AMERICAN COOPERATION

by CHIANG FU-TSUNG, *Director*
NATIONAL CENTRAL LIBRARY

INTRODUCTION

Because of the early invention of writing in China, her written records go far back into antiquity. A library is nothing more than a place where such written records are preserved. Archivists in ancient China were, in fact, librarians. For this reason Lao-tzu, the philosopher, is said to have been the "archivist in charge of the Chou archives."

However, the history of the modern Chinese library cannot boast of such a long tradition. Before the first modern public library was established in China fifty-five years ago, libraries in China were either imperial collections and palace archives, government agency libraries, monastic libraries, school libraries, or private collections. A great deal of emphasis was put upon the collection and safe-keeping of materials, in contrast to the modern concept of a public library whose chief concern is the diffusion of knowledge through logical arrangement and organization of materials for the benefit of the general public, and to promote educational aims by means of various library services.

The first mentioned book collections open to a limited group of individuals were the three "Wen" pavilions of Emperor Kao Tsung of the Ch'ing dynasty (1736-1796): the Wen Hui Ko of Chiang-tu, Wen Lan Ko of Hang-hsien, and the Wen Tsung Ko of Chen-chiang. In each of these three pavilions a set of the Szu K'u Ch'uan Shu, or the Four Great Ch'ien Lung Collectanea, was kept for the benefit of scholars and students. Although such an arrangement left much to be desired, it may pass for a public library since it met the basic criterion of "providing books for the public." Both Wen Tsung and Wen Hui were destroyed during the T'ai-p'ing Rebellion, while Wen Lan was partly destroyed. The pavilion, repaired after the war, still welcomes visitors to the reading room, known as the "Room of Tai-I-Ch'ing-Fen" (Fragrance of the Great Monad).

The first attempt to establish a modern library can be traced back to the Wu-hsu Reform (1898). In a memorial submitted to the Court, Li Tuan-fen, then Secretary of Rites and an advocate of the Reform, suggested that "book storing pavilions be established for the enlightening of the people." Before the word *T'u-shu-kuan* (meaning library) was introduced to China, "book storing pavilion" was the term used for libraries (such as the Chekiang Ts'ang-shu-lou and the Chiang Nan Ts-ang-shu lou). The first libraries were established in the declining years of the Ch'ing dynasty. A good example is the Ch'iang-hsueh-hui, founded in Peking by K'ang Yu-wei and his associates, which maintained a collection of books for the general public. Unfortunately, the library movement did not get very far before the Wu-hsu Reform failed. However, another reform was intended in the last years of the Ch'ing dynasty, and several libraries were established under this reform program. Among those worthy of mention are the Chekiang Library and the Honan Library in their namesake provinces, and the Chiang Nan Library in Nanking (Chiang Nan T'u-shu-kuan). (*T'u-shu-kuan,* a term borrowed from the Japanese, meaning library, is the Chinese equivalent for Library or Bibliothek).

In this preliminary stage of modern library development in China, the libraries all copied their organization and administration patterns from Japan. In cataloging and classification, traditional Chinese procedure and methods were used. Although a Chinese library of the present day, when compared with its counterparts in the United States, is still lagging behind, it has come a long way. And it is due to Sino-American cooperation that the establishment and development of the modern Chinese library became possible. For the library did not become a modern public institution until modern library science was introduced from the United States.

FROM THE FOUNDATION OF THE REPUBLIC UNTIL THE SINO-JAPANESE WAR

Establishment of the Library School

Miss Mary Elizabeth Wood, a graduate of Simons College Library School, came to China in 1900. Soon convinced that modern libraries were badly needed in order to facilitate the development of schools and universities in China, she borrowed an octagonal pavilion from the Wen Hua University in Wu-Ch'ang to start a small public library. Tireless and selfless efforts both in China and in the States were made to raise funds through the spread of her convictions. After ten years of such tireless efforts, she finally established the Wen-hua-kung-shu-lin (The Public Book Collections of Wen-hua) in 1910. Although this library was located on the campus of Wen-hua, it was not the university library. Consequently, it was called a "public book collection." This collection was heavily used as it offered free access to the public in general. A touring book collection was also started. Under this project, books were selected to be deposited with the several schools in the Wu-Han area. Students of these schools were thus offered library service.

The Wen Hua Public Book Collection was basically an American public library in China. It was established after the Republic was founded and the Library Regulations promulgated by the Ministry of Education. Strictly speaking, this Public Book Collection was actually a university library offering free access to the general public, rather than a public library. As far as legal technicality is concerned, the Wen Hua Public Book Collection was never formally established. Its major significance and influence was more on the establishment of the library school than on Chinese libraries, for Miss Wood taught courses in library science at Wen Hua, and two of her students went to the States to specialize in library science. When Messrs. Samuel Shen and Hu Ch'ing-sheng returned to China, they helped Miss Wood run the Public Book Collection. And when a library school was established at Wen-hua, both Miss Wood and Messrs. Shen and Hu served as instructors. In 1925, Wen-hua University was reorganized as the Hua-chung (Central China) University, which closed two years later. Since then, the Boon Library School, or the Wen-hua Junior College of Library Science, as it is called in Chinese, has been an independent school.

As the first library school in China, the Boon Library School has done a great deal for the modernization of libraries in China. Many of the librarians in charge of Chinese collections in various American libraries received their library training at Boon.

The Library School of Nanking University, Nanking, was established shortly after the Wen Hua Public Book Collection was founded. In 1913, Harry Clemons, an American librarian, came to Nanking to be the Director of the Nanking University Library. He also taught courses in library science at the University.

Having received specialized library training in the United States, Messrs. Hung Yu-feng and Li Hsiao-yuan, both students of Mr. Clemons', returned to Nanking University to start its library science division. Unfortunately, the Division was closed a few years after its inauguration. Although it was re-opened in 1940, the Division failed again after a short time. Its graduates are not many, but its contribution has been great in spreading the new knowledge of library science and in improving college and university libraries.

Since both of these schools were initiated by American librarians, it is only fair to say that the education and training of Chinese librarians was actually started by Americans. Following this initiative, various seminars and summer workshops were conducted to introduce American library science into Chinese libraries. This initiative also aroused the interest and attention of the Chinese library profession. Chinese librarians began to realize that we needed new methods to organize and manage a modern library. On the other hand, the general Chinese public also began to understand that library science is a branch of specialized studies, and special schools were needed for the diffusion of this branch of knowledge.

Establishment of modern libraries in China

A modern library is one that offers various library services by the employment of modern methods and with a modern library building designed and built for that purpose. Although the Wen Hua Public Book Collection is in every respect the first modern library in China, it was more or less a university library. Besides, the establishment of the Public Book Collection was followed by a period of chaos when the warlords fought one another. As a result of this turmoil, the majority of Chinese universities, with the exception of a few operated by religious missions or with independent financial resources, were short of funds. Thus, new libraries with modern library architecture were all connected with religious missions.

The new library building of the Episcopal Church, which sponsored St. John's University in Shanghai, was completed in 1914. In 1918, the Nan Yang Library, famous for its big budget, celebrated the inauguration of its new building. Although all these three had modern library buildings, the library with great influence upon other libraries was the Tsing Hua University Library. Tsing Hua, established in 1919 with Boxer Indemnity Funds returned by the United States, was first founded as a preparatory school for students wishing to further their studies in the States. Consequently, all Tsing Hua facilities were up to the standards of a modern university. With the American educated Dr. Tai Chih-ch'ien as its Director, the Tsing Hua University Library was the best modern university library in Peking, and served as a model for all Chinese libraries. The Southeastern University, later Central University, built up its Meng-fang Library in 1924. Under the directorship of Mr. Hung Yu-feng, this library became the model library in Mid-Eastern China. Dr. Tai and Mr. Hung were also responsible for the establishment of library associations in Peking and Nanking as well as for the Library Education Division of the Society for the Advancement of Chinese Education, a national organization whose membership included all Chinese educators.

During this period, a number of universities started constructing new library buildings, as did a few public libraries, and library associations were founded in various cities. It was generally felt that a national library association, as well as a well-developed large-sized national library, was needed to lead the Chinese library profession. At that time, Miss Mary E. Wood went back to the States to urge the U.S. Government to return the second part of the Boxer Indemnity Fund to China to be used to improve Chinese cultural educational institutions. She also acted as the representative of the Society for the Advancement of Chinese Education and invited Dr. Arthur E. Bostwick, of the American Library Association, to come to China to lecture on library science and to investigate the library situation in China for the purpose of planning how the returned funds could be used to best advantage. Miss Wood returned from the States after accomplishing her mission, and Dr. Bostwick came to China in April, 1925. The Chinese library profession gave him a warm welcome, and the Library Association of China was formally established on the day of his arrival at Peking. Based on his investigation, Dr. Bostwick recommended to the American Library Association that part of the Boxer Indemnity funds be used to establish several large libraries in the larger cities of China. His recommendation was adopted by the China Foundation for the Promotion of Education and Culture, and the large-sized National Peiping Library was built.

Although during past dynasties no national library existed in the modern sense of the word, each dynasty had a good-sized book collection, such as the T'ien-Lu Ko and Shih-Ch'u Ko of the Han dynasty and the Li-Cheng Tien and Ch'ien-Yuan Tien of the T'ang dynasty. But most of the T'ang collections were destroyed in the An-Lu-Shan and Huang Ch'ao rebellions. In the bibliography of the Old Book of T'ang (The History of T'ang), it is said "not a single slip of the old books was saved." The Sung collection was originally built on the collections of the Late Shu (925-965 A.D.) and South T'ang (937-975 A.D.), especially the latter. With new acquisitions added by the later Sung emperors, the Sung collections of the three "kuan" grew to be one of China's best known collections. But after the war of Ch'in-K'ang (1126), none of the Hsuan Ho collection was left, as was duly recorded in the bibliography of the Sung History. The Nu Chen Tartars kept part of their loot in the palace and the rest of it in P'ing Yang. These books later fell into the hands of the Mongols when they vanquished the Tartars. After the Mongols conquered the South Sung, all the Sung palace collections, except the Imperial Academy edition (Kuo-tzu-chien), which was kept in the West Lake Academy (The South Imperial Academy of the Ming dynasty), were shipped to the "Great Capital"—Peiping. After the first Ming Emperor regained the throne from the Mongols these books were shipped to Nanking, the new capital. They remained there until they were moved back to Peking once again when the Emperor Ch'eng Tsu of the Ming dynasty made Peking the national capital. According to the bibliography in the History of Ming: "books of the palace collection were all good editions left from the Sung and Yuan dynasties. They were well preserved and well kept until they were partly destroyed by the bandit insurgents."

The palace collection of the Ming dynasty is the Wen Yuan Ko collection. This collection, according to the Jih-hsia-chiu-wen by Shu I-tzun, was built upon the collections of the Sung, Chin (Nu Cheng), and Yuan dynasties. Yung-lo-ta-tien of the Ming Yung-lo Collectanea was compiled from these materials. For this reason, it is said in the Notes under the Catalog of Wen Yuan Ko in the Annotated Catalog of the Szu-k'u-ch'uan-shu that this collection is a very rich one, and one often finds books that have failed to come down to the present time listed in this catalog when one checks the Yung-lo Collectanea against it. Unfortunately, this rich collection was not properly kept. Some of the books became lost even during the Ming dynasty. The number of missing titles grew even larger after the Chia Shen coup d'etat of the Ch'ung Cheng period (1664).

Compared with Ming, the Ch'ing Court paid more attention to books. In addition to the Tsung-lu-ling-lang collection, the Yuan Ming Yuan collection and the Jehol Summer Palace Collection all contained some rare books. The Wen-yuan ko of the Ch'ing dynasty was built after the architectural style of T'ien-I-Ko of Fan Ch'in for the purpose of keeping the Szu-k'u-ch'uan-shu. The Wen-yuan-ko of the Ming dynasty was originally the office building of the Cabinet where the old collection of the Han-lin-kuo-shih-yuan (which included boks left from the previous dynasties) was kept. A rectangular collector's seal bearing the name of Han-lin-kuo-shih-yuan can often be found stamped on books that formed part of the Cabinet Collection. Books left from the pre-Ch'ing dynasties either became the palace collection or formed part of the Cabinet Collection. In the declining years of Ch'ing, the incomplete sets of this latter collection were turned over to the newly established Capital Library, which later became the National Peiping Library. Among these books were the manuscript copy of the Hsien-Yuan-lei-p'u, or the Register and Records of the Sung Royal Family, and the Sung block-printed editions of the Ou-yang Wen Chung Kung Chi, or the

Complete Works of Ou-yang Hsiu, and the Wen-yuan-ying-hua, or the Best Literary Works, all in their original bindings. From this fact we may conclude that the only national collection that was left from all the past dynasties was acquired by this library.

The Capital Library was also the proud possessor of a set of the Szu-k'u-ch'uan-shu, or the Four Great Ch'ien-lung Collectanea, which was originally kept in the Wen-ching-ko of Jehol, and some 8,000 scrolls of T'ang manuscripts sutras discovered in the Caves of Tun Huang.

In 1929 this library signed an agreement with the China Foundation for the Promotion of Education and Culture and was merged with the Peiping Metropolitan Library to form the National Peiping Library. The Foundation granted $700,000 to the Library for the construction of a new library building. C. W. Anner, an American architect connected with the Union Hospital of Peiping, was asked to serve as advisor; and the designs submitted by various architects were judged by the American Architecture Society. Although the design of V. Leth-Moller, a Danish architect, was chosen and he supervised the construction work, the building was in every respect a result of Sino-American cooperation.

After this largest modern Chinese library building was completed, funds were also made available for the operational expenses and the acquisition of Western language books. In the course of time, this library, with its book collections and modern facilities, became the best developed library in China. Because this library was a library with Chinese cultural tradition, and because it was the best library in China through the joint effort of these two countries, it may be said to be a sample of cooperation between America and the Chinese cultural-historical tradition. Its influence was far greater than the Boon Library School of Wu-Ch'ang. This is not only because the school was not situated at the cultural economic center of China, but also because the influence of missionary schools does not always reach the basis of traditional Chinese culture. Consequently, the Boxer Indemnity Fund returned by the United States was employed to build the National Peiping Library. It was a great achievement of Sino-American cooperation as well as the greatest achievement of the modern Chinese library profession, for its influence was deep and nationwide. The writer wishes to take this opportunity to pay his sincere respect to the late Messrs. Liang Ch'i-ch'ao, Fan Yuan-lien, Tsai Yuan-p'ei, and Dr. Hu Shih who administered the Foundation. Also, the writer wishes to pay respect to Dr. Yuan T'ung-li who laid the foundation for this library along the organization pattern of a Western national library.

FROM THE SINO-JAPANESE WAR UNTIL THE GOVERNMENT MOVED TO TAIWAN

On July 7, 1937, the Japanese launched a full-scale invasion of China. People in northern and southern China were forced to flee to the western part of the country. Universities moved with their libraries. Except for county and municipal libraries, a number of provincial libraries also moved westward. The National Peiping Library moved part of its rare books to

Shanghai and thence to the United States for safekeeping. At present, there are still one hundred-odd crates of books stored in the Library of Congress, Washington, D.C.

The Sino-Japanese War did more damage to Chinese libraries than anything else. It completely destroyed what was achieved under Sino-American cooperation. Library materials could be moved, but not buildings and facilities. Consequently, the libraries, after moving to the rear areas, had to start over from scratch and make do with what was available. For instance, poor quality locally-made paper was pasted together to make cards for the catalog, and cotton paper soaked with oil took the place of pane-glass. The library returned to its primitive condition.

The greatest difficulty encountered at that time was the lack of western language books and materials, for the only means of transportation was aircraft. In order to alleviate this difficulty, the U.S. Cultural Attaché scrutinized new magazines to select articles for mimeographed distribution. Microfilms were also in use. In the several large universities and libraries, rooms were made available for the showing of microfilms. Microfilm readers were not available then, so the film was projected onto a white screen as we do now in cinema houses. It may seem ridiculous today to have readers sitting in the dark "reading" microfilms, but this little episode serves to illustrate how the United States tried to help the Chinese break the intellectual blockade during war time.

The National Central Library was among those moved to the island area. This library was established in 1934 by the Ministry of Education, following a resolution of the National Education Conference of 1928. Because China is a large country, the National Peiping Library could not be moved to Nanking, the national capital. As the hub of national political activity, Nanking needed a national library. But that was shortly after the 1931 war with Japan when the government was feeling financial strains. Dr. Chu Chia-Hua, the Minister of Education and concurrent Minister of Communications, appropriated $2,000 monthly from the Ministry of Communications for the preparation of the library. Faith in establishing a national central library was all the library had when it opened its preparatory office on April 12, 1933. There was not a single book, not a piece of timber, and no budget. Although a budget was approved in July, it was for only $4,000. Four months later, the Commercial Press was constructed to print 2,000 volumes of the Ssu-k'u-ch'uan-shu to be used for exchange with other countries for badly needed western language books. The lack of Chinese books was solved through a revision of the Copyright Law, under which books published in China should be deposited at the library. Part of the limited budget was also set aside for the acquisition of books. One year later, the library with its 170,000 books was open to the public. A printing shop was also set up to supply printed catalog cards. At the same time the library was granted $1,500,000 by the British Boxer Indemnity Fund Administration for the construction of a new library building—the largest modern Chinese library to be built. But the Sino-Japanese War broke out when the library was still making preparations for construction. Air raids followed the outbreak of war and the library was forced to move westward in November, 1937. Due to transportation difficulties, only 130 crates of books were moved to Chungking.

In 1938 the library was re-opened for public use in Chungking. A library building was completed during almost incessant air raids and inauguration of the library was formally proclaimed in 1941. This library, with its 300,000 volumes and 400 seats for readers, was the center of cultural activities in the Chinese wartime capital. When presidential candidate Wilkie of the United States came to visit China, this library, with short notice, invited the Palace Museum to co-sponsor an exhibition of rare books and antique items to honor the visiting American statesman. When the war ended in 1946, upon recommendation of this library to the Ministry of Education, the library building and its facilities were turned over to the National Roosevelt Library, a new library established to honor President Franklin D. Roosevelt for his assistance to China. The library was then moved back to Nanking. Although Sino-American cooperation during wartime was primarily military, and libraries received little help from the States, the National Central Library managed to carry on its functions and duties.

In 1930, while the war was raging, the Ministry of Education received letters and telegrams from scholars and collectors in Shanghai expressing concern over the rare books in Shanghai. Some of the rare collections were already dispersed, and if the Government did not do something in time, they could fall into the hands of the Japanese. After due consideration, the Government decided that the National Central Library should be responsible for the collection of these books. With the funds originally appropriated for construction of a new library building from the Chinese British Boxer Indemnity Fund Board and some Government subsidies, the library was able to acquire, in three years' time, the rare-book collections of the Chang's and the Liu's of Wu-hsing, the Tsung's of Hanchow, the Teng's of Nanking, and the Shen's of Pan-yu. The first two mentioned were the greatest collections after the four famous private collections of the late Ch'ing period. Hence, it is fair to say that the rare-book collection of the National Central Library is the cream of the South China private collections and the greatest collection in China. After the library was moved back to Nanking, with the new accession of the Tse-ch'uan Collection of Cheng-ch'un, the library's collection reached the one million mark.

Because of the Communist rebellion, this library was moved to Taiwan in 1948. Due to transportation difficulties, the Library was able to move only its rare-book collection (11,162 titles, with 121,368 volumes, and some general books and periodicals). This rare-book collection includes:

Sung Edition	201 titles	3,079 volumes
Chin Edition	5 titles	16 volumes
Yuan Edition	230 titles	3,777 volumes
Ming Edition	6,219 titles	78,606 volumes
Hand-copied Edition	2,586 titles	15,201 volumes

Manuscripts	483 titles	4,573 volumes
Collated Edition	446 titles	2,415 volumes
Korean Edition	273 titles	1,494 volumes
Japanese Edition	230 titles	2,281 volumes

Although it is not possible to discuss the merits of the individual books here, a general appraisal is in order.

First, this is the richest collection of Chinese rare books in existence. The majority of books printed in the T'ang dynasty and the period of the Five Dynasties (907-960) were rhyming dictionaries and Sanskrit sutras instead of important classics, and only a very few of them were preserved. Regarding the printed materials of the latter period, there are Buddhist sutras and portraits of Buddha in the library's collection. The Collection of Sung editions is usually the criterion upon which a book collection is judged. For instance, Huang P'i-lieh of We-hsien (1763-1825) named his library *Pai-sung-i-ch'an* (Hundred Sung Editions Under One Roof) because of the one hundred Sung editions in his collection. *Pi-Sung-Lou*, or the Pavilion of Two Hundred Sung Editions, was the name of the library of Lu Hsin-Yuan (1834-1894), who claimed to have two hundred Sung editions. But what he actually did was to break up the Collectanea Pai-Ch'uan-hsueh-hai and count the individual titles. In his collection there were also some Ming reprints of Sung editions which he mistook for original Sung printings. Even in the renowned T'ien-lu-lin-lang collection of the Imperial Court of Ch'ing, there were a number of mistaken Sung editions. But the 200 titles of the Sung edition in the Collection of the National Central Library are all authentic Sung editions. In addition, there are more than 200 titles of Yuan (Mongol) dynasty editions and more than 6,000 titles of Ming editions. It is only fair to say that this collection is a real treasure as far as edition study is concerned.

Second, this collection contains a number of excellent editions and some unique items. Among the items are: *Poems of Li-ho of the 12th Century;* the "Small-Type Edition" of the *History of the Five Dynasties;* the *Wu-chun-t'u-Ching Hsu Chi of 1134;* the "Five Commentator Edition" of Wen-hsuan, or the Prince Chao-ming's Selected Readings of Chinese Lin-an book-counter edition of *Ch'un-hsien-hsiao-chi of South Sung;* the *Yuan-tsai-kuang-lu,* printed in the Chin (Nu-cheng Tartars) period; the *Sa-men-pu-ying-pai-szu-shih,* collected from the Chao-Ch'eng Trapitaka, *Kuo-ch'ao-ming-ch'en-shih-liieh, Chung-chou-chi, Lu-shih-ch'un-ch'iu, Tsu-san-hsien-sheng-chi, Ching-yeh-wang-sheng-an-yang-chuan,* and the *Diamond Sutra,* printed with black and red ink, of the Yuan dynasty. There unique items are not only valuable in textual collation, but also valuable because they may be checked against popular editions to detect any errors and omissions in the latter. A few of the above mentioned, such as the Sung edition of Wen-hsuan, the Chin edition of *Yun-tsai-kuang-lu,* and the Yuan edition of *Ching-yeh-wang-sheng-an-yang-chuan-ch'i* have never been reprinted. The *Diamond Sutra,* printed with black and red ink, is the earliest of its kind and its existence disproves the theory that such a printing process was started by Min Ch'i-chi of Wu-hsing in the latter part of the Wan-li period of Ming.

The real merits of this collection cannot be described with these few words. Some of the more than four hundred manuscripts in the library's collection have never been printed. For the benefit of scholars and libraries, this library has published a three-volume catalog of this rare book collection under the title *A Catalog of Rare Books in the National Central Library.* Individual catalogs, such as the Illustrated Catalogs of the Sung editions and the catalog of Ch'ing and Yuan edition, have also been prepared. Still in process are catalogs for the Ming editions, the Ch'ing editions and the manuscripts. A comprehensive undertaking under planning is a systematic study of the various editions of the titles in the library's rare book collection. As the rare book collection of the library is the most complete one as far as edition study is concerned, such a study will prove to be most beneficial. Unfortunately, this project has to remain at the planning stage for lack of funds.

If the library had a microfilm camera and printing equipment, these valuable materials could be filmed and distributed. Other materials could also be printed under some arrangement. This project of reproduction of materials is what this library hopes for from the Sino-American cooperation program.

When the National Central Library was first moved to Taiwan, it became part of the Joint Commission for the Administration of the National Museums and Library in Taichung. In 1954, this library was re-established in Taipei with quarters assigned in the Ministry of Education. A year later it moved into its present address at 29 Nan Hai Road, Taipei. With a new library building and some extension of the old building, the library managed to turn a Japanese shrine into a useable library which now accommodates the Reading Room, Reference Rooms, Government Documents Room, Newspaper Room, Periodical Room, Rare-Book Room, Conference Room, and offices. The present stack is overcrowded and has to be expanded. The library is also planning to build a fire-proof stack with a capacity of 500,000 volumes, a stack for periodicals, a microfilm reading room, a map and print room and stack, and several individual study cells. This is another project which the library fondly hopes may materialize through Sino-American cooperation.

Of the NT$2,500,000 spent on construction, the ICA/MSA to China subsidized NT$500,000 and another NT$198,000 during the next fiscal year. With this sum and the library's construction budget, the library will be able to build an extension on the existing bungalows. Although the library has been gradually replenishing its facilities according to plan, it would be much more economical and much better for planning if the library could have a budget set aside for this purpose.

In addition to its own functions and services, the library has established a Bureau for International Exchange of Publications to discharge the responsibility of exchange. From 1954 to the present day, this library has mailed abroad 269,897 copies weighing 46,475.08 kilograms. This library also participates in various international book exhibitions. It has participated in exhibitions at Frankfurt and Main, Germany (twice); Washington, D.C.; Chicago, Ill.; New York, N.Y.; Tokyo, and Kyoto (twice). The books exhibited are usually presented to such libraries and universities as the University of Washington, Seattle; Vatican Museum; UNESCO; Washington University, St. Louis; Cleveland Public Library; the Free Pacific Academy, Saigon, to mention a few. This library has also been commissioned by The Asia Foundation to compile an annotated bibliography to be published in November, and a directory of all the academic and cultural institutions in Taiwan.

As the Central Library is vested with the responsibility of assisting and guiding all libraries in China, it is also responsible for the training of librarians. The library has assisted the Normal University of Taiwan in setting up the Library Division, under the Department of Social Education, which has now graduated two classes. The Summer Library Workshop, sponsored jointly by the Ministry of Education and the ICA/MSA to China, with the assistance of this library, will be in its fifth year this summer.

After the Second World War, the American Library Association sent Dr. W. Clap, Associate Librarian of Congress, and Dr. C. Brown, Chairman of the Oriental Committee, American Library Association, to investigate the library situation of China. They were received by the National Central Library and recommended that five library schools be established in China with Fulbright grants. There were to be five professors and five instructors of library science sent to China to help train Chinese librarians.

In recent years, funds granted by the ICA/MSA to China under its Overseas Chinese Education Program have been very helpful to libraries in Taiwan. It was under this program that the National Taiwan University Library was expanded, the libraries of Cheng Kung University, Normal University, Cheng Chih University, and the Provincial College of Agriculture were built.

A few high schools have also received funds and books under this worthy program. But it is regretful to say that public libraries have had little help from the ICA/MSA.

If we are to "study the past in order to understand the present and anticipate the future," the past brilliant achievements under Sino-American cooperation should be viewed with new light. The greatest achievements of the past are the establishment of the National Peiping Library as a model which led the library profession as a whole, and the establishment of the Boon Library School, which supplied the new profession with competent personnel. The National Central Library of today has far surpassed the National Peiping Library regarding functions and services rendered, but its physical facilities and resources are much inferior. We sincerely hope that more attention will be paid to libraries so that the National Central Library may shoulder its responsibilities and contribute beneficially to the course of Sino-American intellectual cooperation.

Drs. William FitzGerald, Library Consultant of ICA, Jack Daltan, former head of the International Relations Office, American Library Association, and Raynard C. Swank, his successor, have all expressed their interest in and concern for the establishment of a library school in Taiwan. This can also be done with Sino-American cooperation. A program for further training of librarians is also needed. We hope that an arrangement similar to that of the National Peiping Library (the NPL sent two librarians every other year to the States for advanced training for two years with a Rockefeller Foundation grant) can be worked out with the National Central Library. Such a program, as shown by past experience, should be of great help to the Chinese library profession.

The writer of this paper started his library career at the Peiping Pei-p'o Library under Mr. Liang Ch'i-ch'ao. He was the Secretary of the Peiping Library Association and prepared the way for the establishment of the Library Association of China. In 1930 he went to Germany to be a guest librarian at the Prussian Library. For the last 27 years he has been Director of the National Central Library. His 35 years experience as a librarian is the background for this paper.

In the winter of 1936 the writer met Dr. Ernst Schierlitz, Librarian of The Catholic University of Peiping. When asked to comment on his work at the University, Dr. Schierlitz, a German librarian, said, "I am a German librarian, but I am using American library methods to run a Chinese library." Dr. Schierlitz' remark points out the fact that American library methods have gradually grown to be a tradition in Chinese libraries.

One library may use more American technique than another. A library may even use a great deal of American technique and not know its origin. But every librarian knows that books should be classified and cards should be used for the public catalog. These are all part of American library science, and this knowledge, under Sino-American cooperation, is growing to be a tradition. With the hope that this tradition will be strengthened by introducing more American library science to China, and through closer Sino-American cooperation, the writer has come to attend this significant Conference. He humbly trusts that this paper will shed some light on one of the most important aspects of Sino-American intellectual cooperation.

THE LIBRARY ASSOCIATION OF CHINA AND ITS PLANS FOR THE FUTURE

by CHIANG FU-TSUNG, *Director*
NATIONAL CENTRAL LIBRARY

The Library Association of China was established in 1928 when it had its first gathering of librarians from all parts of China, in Nanking. It maintained publishing of the *Library Science Quarterly*, which gained widespread fame in bibliographic circles, and of the *Bulletin* of the Association. During the Sino-Japanese war years of 1938-45, it moved its headquarters to Chungking, but little progress was made on account of the war. In 1945, the Association returned to Nanking. The number of members at that time reached an all-time high of 1,200. With the fall of the Iron Curtain on the China Mainland, its work was temporarily suspended until its reorganization in 1953 in Taipei. Although this was a small body of 400 members, it did make some progress in the field of library service. One of its major achievements was the Library Summer Workshop. In it, informational courses and purposeful field trips were conducted. This in-service training program soon gained sympathetic support from every corner of the library world. Starting in 1957, the Workshop was jointly sponsored by the Ministry of Education of the Chinese Government and ICA/MSM/China, and administered by the Association. A *Bulletin* has been maintained thus far, and a semi-annual edition will appear this winter.

Through years of observation and interviews with colleagues in Taiwan, the following points are officially considered by the Standing Committee of the Association as vital in its plans for the future.

1. *Need of more planned library buildings*

The library building serves as a symbol of library service. They physical facilities of a library should fit the program of library service. The library structure should therefore be efficient, flexible, and expandable. Although there are a number of university and college libraries with well-planned modern library buildings, many libraries in Taiwan still have to put up with space shortage, makeshift library quarters, and old unfit buildings that should be remodeled. Quite a few university and public libraries, among them the National Central Library, have had their plans deliberately drawn up, but construction is held up for lack of funds.

2. *Need of a library school*

Nowadays, library work has grown to be highly specialized, and we now recognize that librarianship is a learned profession. In 1955, we started, on a small scale, an undergraduate-level training program in the Provincial Taiwan Normal University The result has been fairly satisfactory. Being aware of the ever-increasing responsibility of a librarian in mass com munication, more specific training should be given to him. In doing so, an independently administered department in a university, rather than a subordinate section under a social education department, such as we have now, is more acutely needed in Taiwan in view of future advancement. Teaching staff and instructional materials are the two major requisites for the planned library school.

3. *Exchange of librarians for professional training abroad*

Through the TAP, sponsored by ICA/MSM/China, practicing librarians have been selected and sent to the United States for professional training for the last four years. The training and observation these librarians have received under this worthy program proves to be most beneficial to the Chinese library profession. However, we believe that this program can be further strengthened through a broader exchange and training program. Under this broadened program, two American professors of library science, we hope, will come to Taiwan to teach courses in library science for a period of two years; and we also hope that two practicing librarians will be sent to the United States from Taiwan for training and observation for two years. One librarian will be chosen from those who are experienced in a particular aspect of library work, to receive such specialized training as government documents, gift and exchange, cataloging, etc.; the other will come from the younger staff members to receive general library training and practice. Such a program, figured on a five-year basis, will enable the Chinese library profession to have ten well-trained librarians, and will strengthen the teaching faculty of the library school.

4. *Need for Western language books*

Although many new books in Western languages have been acquired by purchase and through the international exchange of publications, handled primarily by the Bureau of International Exchange of Publications at the National Central Library, books in Western languages are still badly needed in Chinese libraries. We hope the exchange relations will be so strengthened that libraries in China will receive more recent publications in all fields of study, as well as older standard titles.

JCRR AS AN EXAMPLE OF EFFECTIVE SINO-AMERICAN COOPERATION

by CHIANG MON-LIN, *Chairman*
JOINT COMMISSION ON RURAL RECONSTRUCTION, TAIPEI

JCRR stands for Joint Commission on Rural Reconstruction, a Sino-American joint organization established under the China Aid Act of 1948. The Commission is composed of five commissioners, of whom two are U.S. citizens appointed by the President of the United States of America, and three are Chinese citizens appointed by the President of China. Its function is to formulate and carry out a program for reconstruction in rural areas in China. The Act provided that an amount equal to not more than 10 per cent of economic aid to China by the U.S. Congress should be used to carry out the purpose authorized to JCRR. JCRR was formally organized on October 1, 1948, in Nanking, and moved to Taipei at the end of 1949.

DEVELOPMENT OF THE JOINT COMMISSION'S THINKING ON ITS PROGRAM

Behind the program of the Joint Commission there were basic ideas on which the later development of the Commission's thinking were based.

The first basic idea was to know *what not to do.* This we have been talking about among the Commissioners since the very beginning of our program. Much of this we learned from other international organizations that were less successful.

It was well known that such organizations spent a lot of money. Considering the amounts of the money spent, the results were not encouraging. From such experiences we learned what not to do. The reason the policy of JCRR projects and programs is different from those of other organizations is that we began knowing what not to do.

What not to do

1. Not to start with putting up big impressive buildings. These organizations spent millions of dollars in putting up buildings, installing the most up-to-date Western equipment. We know in JCRR that this sort of thing would not fit into Chinese rural life—it is too high up.

2. Not to compete with local enterprise by establishing new organizations—rather to find sponsoring agencies to carry out JCRR projects for us. That is to say, we helped the local organizations and institutions to thrive and grow. We did not compete with them and eventually ruin them.

This is negative—knowing what not to do. Yet sometimes the negative is more important than the positive, for knowing what not to do narrows the selection of *what to do.*

What to do

1. To learn from the farmers and the local people what they want and

need; not to teach, for we do *not* know better than they what they need. This development of JCRR thinking has made our program always dynamic, always learning new things from the farmers themselves. We did not go in with pre-conceived ideas but with an open mind to learn from the people.

2. To keep in mind the idea of social justice when striving for the increase of production. Fair distribution is our primary objective.

3. To find a sponsoring agency to carry out our work. If there is no sponsoring agency, it is better not to go into a program at all.

Our basic ideas about what to do and what not to do have never changed from the beginning. But our thinking has developed from time to time as we continue our visits to the people.

Methods and ways of attacking problems based on general ideas

1. Our thinking developed through the experience we gained by visiting various provinces. In talking with local leaders and tillers of the land we learned about their needs and their grievances.

2. Comparison of the needs of one locality or province with those of other localities or provinces helped us determine which problems were common to all, and which were peculiar to the individual locality. This furnished the basis for the national plan which we now have. This national plan is not a deduction from a general idea in our mind but is based firmly on actual findings and observations in various provinces having common problems.

When we were in Szechuan the people there told us that the most important thing to do was to build more dikes because that helped to increase production. In Hunan it was the same. The people wanted dikes for irrigation. In Kwangtung Province it was irrigation again that the people wanted. Around Peiping they wanted more wells for water. Thus, from solid experience we learned that irrigation was the most important essential in China to increase food production.

Another problem we faced was animal disease. In Canton the people said they were troubled with animal diseases. In Szechuan the farmers were troubled with animal diseases. Again, experience taught us lessons. In this case, it was that hog cholera, rinderpest, and other animal diseases are a national problem.

We always found unity in variety in studying the needs of localities. From variety we got unity, not from a hard and fast rule to be applied to the whole country. From local demands we have evolved a national plan—this plan may be summarized in order of priority as follows:

a. Land Reform
b. Irrigation
c. Fertilizer
d. Farmers' Organizations
e. Rural Credit
f. Plant and Animal Disease
g. Seed Multiplication
h. Animal Breeding
i. Rural Health
j. Audio-Visual Education

It is interesting to note that land reform, the most important but the most difficult to carry out, required comparatively the least amount of money; but it required a faith and strong will on the part of the authorities. The intangible returns born of a sense of social justice were inestimable.

The most fruitful but easiest to carry out was irrigation; but it required the largest amount of money. It was welcomed by everyone and opposed by none, and the material returns of the investment were great indeed.

If land reform and irrigation go together, the combined returns of the two will be both psychological and material. Land reform and irrigation may be regarded as two major keys to the combination lock of the problems in underdeveloped areas. If all the tillers enjoy the ownership of land with plenty of water, the foundations of peace and prosperity are laid, and it is upon these solid foundations that the edifice of technology and agricultural sciences can be built.

The farmers' organizations, if well developed, will be the over-all agencies for carrying out rural services and protecting the farmers' own rights. They will be forceful weapons for democracy.

There were farmers' associations in Taiwan during the period of Japanese occupation. But after the retrocession of the island to China, we made recommendations to reorganize and improve them. We were about to organize similar associations on a small scale in Szechuan, but the military developments made us suspend the work.

This national plan for the JCRR program has been serving as a pattern to guide our work. But merely to have a pattern is not enough. If it is only a pattern, it does not have the necessary qualities of flexibility and dynamism. In my personal view, the JCRR spirit and the JCRR ideas and methods, learned through hard experience, can be applied to the Far East in general.

To be successful, our program must be supplemented by another reform project. Using science to increase production is relatively easy, but solving social problems is difficult. If we had not developed a land reform project along with our production program, the better part of good results would have gone to the landlords and not to the tenants. That would defeat our purposes.

II.

THE JCRR PROGRAM AS ADAPTED TO HISTORICAL, POLITICAL AND SOCIAL BACKGROUNDS IN CHINA

The JCRR program is not merely a group of projects aiming at the increase of production in order to give more loaves of bread or more bowls of rice to underfed millions. However, important as it may be, production is only one of the main objectives. Besides production there are such problems as land reform, rural health, rural credit, processing and marketing, the strengthening of local self-government, and other problems.

In attempting to solve some of these problems, the Joint Commission on Rural Reconstruction has constantly kept in mind the adaptation of the program to the historical, political, and social situation in this country.

Historical, political, and social backgrounds

In China during the last fifty years the people have been under the impact of European ideas. In the first stage the West was seen by the Chinese people mainly through Japanese eyes.

1. *Growth of Nationalism.* After the Sino-Japanese War of 1894, nationalism and political reform, later political revolution, became the order of the day. By adopting Western civilization, Japan had become wealthy and strong. Why could not China become so, too? If she would do likewise, the Chinese would argue, China must introduce Western civilization by way of Japan. At that time, people had only a vague conception of Western civilization. Their aim was to make China wealthy and strong by the introduction of Western civilization, which was regarded then as a sort of panacea to cure China's diseases of poverty and weakness.

2. *Growth of Liberalism.* Meanwhile, the idea of Western democracy made inroads into the country. Liberalism in Western democracy finds its counterpart in humanism of the Confucian School. On the basis of Confucian humanism, the idea of Western liberalism began to take shape in China.

3. *Freedom of Thought and Free Inquiry.* After the defeat of the Central Powers in the First World War, the impact of Western democracy was felt in wide parts of the world. It led the people to revolt against paternalism, medieval institutions, colonialism, and imperialism.

On its positive side, freedom of thought took root in institutions of higher learning. "Science and Democracy" became the watchwords of the young generation.

Adaptation of Western ideology to Chinese conditions

As stated above, China has been traveling along the hard road of adaptation to Western ideology since after the first Sino-Japanese War, in spite of repeated setbacks and failures. The main tendency has not changed, except in the case of the Communists.

The JCRR program, combining Western ideas of democracy adapted to Chinese conditions, consists of the following guiding principles:

1. The welfare of the majority of the rural population is to be considered first.
2. Projects are to be based on the felt needs of the rural people.
3. Projects are to be carried on by the people themselves through sponsoring agencies, so that they will be in a position to build up their own work under JCRR technical and financial aid.
4. The local governments and other sponsoring agencies in the area are to be strengthened in building up services for the rural people. The basic idea is to help the people themselves in meeting their needs, not to decide something for them and impose it upon them. This is the democratic way.

We find the policy of self-help is well suited to the Chinese rural conditions.

The Chinese village is a self-governing unit. The people manage their own business. They thus learn self-respect and self-reliance. They may be poor but proud.

Again, under the constant teaching of nature, the Chinese rural people have gained a great deal of common sense. They can be convinced only by deeds, not by words.

Implementation

To put the above principles into effect, the JCRR program has been planned for "Production and Social Security," as shown in the following paragraphs:

1. *Production.* Chinese farmers will not accept vague ideas about the increase of production; they want to see that production is actually increased. The most tangible project for production that they can readily understand is irrigation. It is very plain that more water means more production, and too much of it means destruction.

Another plain fact they can readily see is disease control, both plant and animal. To the farmer, the death of a buffalo or the destruction of a crop by disease means calamity.

Rural health is to maintain the productive power of the farmers, in addition to relieving the sufferings which they can readily see.

The main point is to push through a tested line of work on a nation-wide or province-wide basis so as to achieve an appreciable over-all result. To launch piece-meal projects without reference to an over-all plan means dissipation of energy. In forming a program, we try to select a few lines of most needed work and see to it that they will have nation-wide or province-wide effects.

Before introducing a new project with which the farmers are not familiar, demonstrations must be held to show them how the project would benefit them.

2. *Social Security.* In agricultural countries, the implementation of a program of land reform as a form of social security takes a large part of the wind out of the sails of communism. This is the reason why the JCRR has been supporting in earnest the land reform.

III.

POPULATION AN URGENT PROBLEM

The average rate of population increase in a recent five-year period in Taiwan was 35.8 per thousand. It used to be 24 per thousand, but due to modern medicine and advances in local public health programs, the death rate had been cut down from 14.35 per thousand in 1948 to 7.58 per thousand in 1958. The population of the Island, according to 1959 census, was 10,431,000.

The agricultural population in Taiwan (1959) was 4,975,233, about half of the total population. The number of farm households was 780,402. The average size of the farm household was 6.38. The area of cultivated land is 877,740 hectares. On the average each household cultivates 1.12 hectares or 2.78 acres.

A comparison between the population and the acreage of arable land in the past decade shows an unhealthy aspect in Taiwan's demographic development. In 1947, eight persons lived on a hectare of land. By 1959, the same piece of land must produce enough to feed 11 persons. The average farm has been reduced from 1.51 hectares to 1.15 hectares. The number of people engaged in economic activities, which constituted 38 per cent of the total population in 1947, was 32 per cent by 1956, a fact which indicates that, under the pressure of population increase, job opportunities have also been reduced.

Based upon the present tendency in Taiwan, its population by 1980 will increase to 20,000,000, if not checked by natural causes or artificial means.

The benefits which accrue to the rural people from the work of the sponsoring agencies with the assistance of JCRR would inevitably dwindle as the population increased. There will be a time when all the increased production will be rendered useless by over-population.

IV.

WHAT HAS JCRR ACHIEVED UNDER THE ABOVE GUIDING PRINCIPLES?[1]

1. Given stability and prosperity to the rural areas of Taiwan through land reform and technical training in production.

2. Helped to lay a solid foundation for agriculture before trying to industrialize the island.

3. Helped to strengthen the democratic ways of life through free elections for the province-wide farmers' associations.

4. Helped the rural youths to practice democratic ways of living and to foster the cooperative spirit in production through 4-H Clubs.

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[1] President Eisenhower's speech to the Chinese people during his visit to Free China, delivered on June 18, 1960, Taipei, Taiwan: ". . . A great economic accomplishment of the past ten years was your program of land reform. Due to its fair and democratic conception and execution it has become a model for similar reforms in other lands. It dealt successfully with one of the fundamental problems the Chinese people have faced throughout history. Moreover, you achieved much more than a fair and equitable adjustment—you produced both social dynamism and economic growth. . . . We are proud that we have been of some help technically in carrying through your agricultural reform program. We, too, have learned much from our association in the Chinese-American Joint Commission on Rural Reconstruction. We have been able to use this experience to good advantage in helping other countries."

EDUCATION AND RESEARCH IN CHEMISTRY IN THE REPUBLIC OF CHINA

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Chemistry has long been a favorite subject of Chinese students. For the past thirty years the enrollment of the chemistry department has always been the largest among the departments of the colleges of science. Before 1928, however, very few of the faculty members of these chemistry departments were engaged in research work. Their efforts were almost exclusively concentrated in the teaching and tutoring of undergraduate students. By 1928, the chemistry departments of the leading universities began to turn their attention to the development of research. In the summer of that year, the Academia Sinica was inaugurated. Among its first four research units that came into existence simultaneously with the inauguration of the central organization, was "The Institute of Physics, Chemistry and Engineering." This institute was soon split into three independent institutes, of which The Institute of Chemistry was one. From 1928 to 1937, great progress in chemical research was made in several leading universities, with the National Tsing Hua University and the National Peking University, both located at Peiping, setting the pace.

In August, 1932, Chinese chemists held a convention in Nanking, the capital of China, and founded the "Chinese Chemical Society." In the next year, the first issue of the *Journal of the Chinese Chemical Society* was published. In three years the *Journal* had distinguished itself as a periodical of high standard and become the repository of the results of original work achieved by Chinese chemists. This rapid progress in the field of chemistry continued up to the time of the outbreak of the Sino-Japanese War in the summer of 1937, when the leading universities and colleges had to move one after another to the interior of China. During the eight years of the war, teaching and research work in chemistry were naturally hampered and restricted. However, the Chinese chemists did their best to continue their work within the limited means at their disposal. They turned out enough original papers to keep on with the publication of the *Journal of the Chinese Chemical Society,* although the number issued for each volume was reduced to one or two as compared with the usual four during the prewar period.

After the war, all the refugee universities and colleges returned to their original sites, and several new ones were founded. But, before the chemists had time to restore their library and laboratory facilities to the standard of the prewar golden period of 1931-37, the Communists launched their armed revolt and threw the whole country into chaos; and our government had to abandon our mainland and move to Taiwan in the winter of 1949. At that time, there were only two institutions of higher education which gave training in chemistry; namely, the National Taiwan University and the

Taiwan Provincial Teachers' College (the predecessor of the Taiwan Provincial Normal University). As the latter's academic mission was mainly confined to the training of chemistry and physics teachers for high schools, the task of chemical research fell on the shoulders of the faculty members of the Chemistry Department of the National Taiwan University. Some laboratories of the chemical industries were also engaged in research work, but their emphasis was on the applied or commercial side. The Chinese Chemical Society, revived in Taiwan in December 1951, resumed the publication of its *Journal* three years later by starting a new series (Series II.). Volume 1 of this series appeared in December, 1954.

During the last five years, five new chemistry departments were established in other universities and colleges of Free China. Two of them have already had one class of graduates, while another will have graduates this summer. In the fall of 1955, the National Taiwan University was ready to offer graduate courses to students of chemistry working for a master's degree. The Academia Sinica has also been planning to revive its Institute of Chemistry, and has set up, as an initial step, a fermentation research laboratory.

Of all the chemistry departments of the different universities and colleges and the research laboratories of the various chemical industries in Free China, the Chemistry Department of the National Taiwan University is perhaps the most important as it is not only the sole educational institution which offers graduate training in chemistry, but also the center of chemical research, as evidenced by the fact that 72.7 per cent of the articles published in the *Journal of the Chinese Chemical Society* have been contributions from its laboratories. A brief description of this Department, therefore, will be given as an illustrative example.

The Chemistry Department of the National Taiwan University lays emphasis both on teaching and on research. The performance of the three hundred-odd graduates it has turned out in the past 14 years attests to the quality of the teaching; and the continuous stream of publications from its laboratories, averaging 15 papers per year during the last ten years, represents a fair record of the results of research. The growth of the Department is reflected in the increase in the number of staff members during the period 1945-60. In 1945 there were only eight faculty members. Today there are 18 full-time teachers (eight professors, seven associate professors, and three instructors), 27 junior staff members (ten of them are full-time assistants) and seven half-time (graduate) assistants. The growth of the staff has been necessitated by the increased enrollment. In 1945 there were only 28 undergraduate students in the Department. At present, it has a total of 136 undergraduate and 23 graduate students. The number of students would be much larger if we did not have to restrict the enrollment owing to our limited accommodations. Only the top graduates of good high schools have been admitted to the Department through competitive entrance examinations.

Besides the training of undergraduate and graduate chemists, the Chemistry Department also plays an important role in the education of thousands of other students who need some knowledge of chemistry for their work in engineering, agriculture, biology, medicine, or general educational background. In the current academic year, the Chemistry Department is offering courses in general chemistry to more than a thousand students, analytical chemistry to 450 students, and organic chemistry to 440 students.

Now a few words on Sino-American cooperation in the field of chemistry. Before 1954, very little had been undertaken along this line. Only a small number of Chinese chemists were sent to the United States for training during the years 1949-53. One or two fellowships were awarded by The China Foundation to the chemists on the faculties of Chinese universities and colleges each year, enabling them to do ten months of research work in an American university. Fellowships were also occasionally awarded to Chinese chemists by the ICA/MSM/C (International Cooperation Administration Mutual Security Mission to China). Closer cooperation began to take place from 1954. In addition to fellowships, the ICA/MSM/C made grants to several universities and colleges to improve their physical facilities for teaching chemistry to undergraduate students. One example is the newly completed chemistry building of the National Taiwan University. It is a building of three stories with a total floor space of 46,656 sq. ft. Of its cost of construction, 80 per cent was paid with ICA grants. This building is now being used by the Chemistry Department and its graduate school. (The old chemistry building, which is a building of one story, with a total floor space of 22,531 sq. ft., now houses student laboratories in general chemistry, qualitative analysis and quantitative analysis.) The ICA also helped the Taiwan Provincial Normal University to add an annex to its chemistry building; other grants were made by the ICA to the Taiwan Provincial Normal University, the Taiwan Provincial Chengkung University, and the National Taiwan University for the procurement of books, equipment, and supplies for their chemistry departments.

Since 1958, Sino-American cooperation in the field of chemistry has expanded to include other activities: namely, (1) the invitation of American visiting professors, and (2) the grant of research subsidies to faculty members and the award of fellowships and scholarships to graduate students in the Chemistry Department of the National Taiwan University. The first activity was started by the China Foundation Visiting Professorship program. Dr. C. H. Li, Professor of Biochemistry at the University of California, was invited to come to Taiwan in the spring of 1958 to teach at the Chemistry Department of the National Taiwan University for a period of three months. His lectures won instant and tremendous popularity, and many faculty members and students from other universities came to attend his lectures regularly. This was followed by the "Exchange Program" of the U.S. Educational Foundation in the Republic of China (Fulbright Foundation). The second activity was started in the same year by The Asia Foundation. In an agreement signed by the Foundation with the National Taiwan University, research grants were made to chemistry professors who teach in the graduate school, and fellowships and scholarships were awarded to promising chemistry graduate students. For the two-year period which is about to expire, a total of $10,000 was granted. This donation has greatly stimulated the research work of both the faculty and the graduate students. Dr. Kenneth S. Pitzer, Dean of the College of Chemistry of the University of California, in his recent visit to Taiwan, told me that our Chemistry Department, with its present faculty and library and laboratory facilities, can be easily developed into an institution competent for training Ph.D. candidates if certain special instruments and apparatus are acquired and installed. In 1959, a "National Council on Science Development" was established in our country. It gives research subsidies to scholars, including chemists, and, through the help of the ICA/MSM/C, makes grants for the procurement of books, periodicals, equipment and supplies, and the construction of research laboratories.

Up to the present, a total of 32 chemists (chemical engineers not included) from universities, colleges, and other research institutions have been sent to the United States for a period of half to two years to conduct research work or for training purposes. Twenty-nine of them have already returned and are contributing much to the improvement of teaching and the advancement of research in chemistry. The above number does not include those chemists who have gone to the United States for graduate studies at their own expense or with the help of fellowships, scholarships, part-time assistantships, or research assistantships granted by American universities. The latter number is much larger. For the National Taiwan University alone, more than 120 of its chemistry graduates are in the United States, and 20 of them have already received their Ph.D. degrees. Three of these new Ph.D.'s have returned and are now teaching and doing research work in three different universities. Although shortage of teaching personnel is a general phenomenon in the colleges of science, their chemistry departments, on the whole, are much better staffed than the others. However, the inadequacy of equipment and other facilities is more strongly felt in chemistry than in other fields as it costs much more to run a chemistry department with efficiency. Hence the greatest and most urgent need for strengthening instruction and research work in chemistry is timely acquisition of more funds for procurement of additional equipment and supplies.

SINOLOGY AND INTELLECTUAL COOPERATION

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Since the Sinologist is a specialist on the culture of one country, China, it might seem that his task has little to do with cooperation between scholars of various countries. But that is far from being the case.

In the first place, Sinology as we know it today is quite clearly the product of such cooperation. China's traditional literature, history, and scholarship constitute an intellectual treasury that is perhaps unique in the world. Its riches, however, have not been fully exploited until our own day. To mention the field with which I am most familiar, that of the rediscovery of the formative period of Chinese civilization in the pre-Christian Era, it is sober fact that greater advances have been made in this regard during the twentieth century than in the previous two thousand years. And this has been done by scholars who, while they are predominantly Chinese, have been stimulated to approach old problems in new ways because of their knowledge of techniques developed outside of China.

Archeology is an obvious example. Scientific excavation in China has utilized techniques developed elsewhere. But those techniques have been adapted by the Chinese excavators to their own needs. Furthermore, the whole edifice of Chinese archeology has been built upon a Chinese tradition thousands of years old, created by historians, collectors, antiquarians, paleographers, lexicographers, textual and literary critics, commentators, etc. The great bulk of this amazing achievement of recovering the past has been accomplished by Chinese scholars working chiefly with Chinese materials. And yet I believe that they themselves would be the first to acknowledge the important catalyzing role of knowledge and techniques that came from outside of China.

Furthermore Sinology as we know it today is not merely the product of international cooperation—it *is* international cooperation. Western scholars studying some cultures collaborate relatively little with scholars of the country in question. But Sinology is an international intellectual community in which Chinese play a leading role. In the West this is much more true today than it was in the nineteenth century, which is one reason why Western Sinology is more advanced today. It is well known that in the United States, Sinology barely existed 30 years ago, while today it has achieved a certain stature. This is largely because of the excellent relations that Americans working in this field have enjoyed with their Chinese colleagues. Many of us have studied for years in China. We correspond with Chinese scholars and debate problems with them. We have many Chinese scholars on the faculties of our universities, where they occupy positions of eminence. This kind of cooperation is symbolized by that of Yenching and

Harvard Universities, and the indispensable monuments of scholarship that have been produced by the Harvard-Yenching Institute.

It was my own great good fortune to be able to study for two years at Harvard under the almost daily tutelage of Mei Kuang-ti, a teacher as generous as he was exacting. My first trip to China in 1932 coincided with Professor Mei's return, and he introduced me to his friends, including a number of scholars of the first rank. I still marvel at their generosity and the patience with which they spent hours of time in discussion with an American novice in their craft. They tried to allay my embarrassment by assuring me that they hoped to learn something of Western research method from me, but I had to tell them quite frankly that I knew very little to impart.

Genuine scholars are usually generous, but I have never encountered magnanimity among any others, even those of my own country, to compare with that of the Chinese. Peking, in the thirties, was a Sinologist's dream. Whenever I ran up against an insoluble problem I needed only to get on my bicycle and pedal to the home of an outstanding authority on the subject, sure of a cup of tea and a helpful conversation. More than once I was given an unpublished manuscript with permission to take it home and copy out whatever I wished for my own use, with no concern as to whether I would or would not give the author proper credit. I shall never forget the kindness of one man, one of the select few of China's really great paleographers, who for two years devoted two hours weekly to initiating me into the mysteries of oracle bone and bronze inscriptions. My deep indebtedness troubled me, yet I knew better than to offer him money. Therefore I once tried to give him a small piece of Sung porcelain, not expensive but carefully selected, which I hoped would appeal to his taste. But he said, "No, this is a purely intellectual relationship. If you give me anything, it must cease." It did not cease.

Sinology has a function to discharge, not merely as regards relationships between individuals, but also in connection with those between nations. We talk much of living in "one world," and of the necessity for mutual understanding and respect among nations. And then we Westerners use an absurd expression like "the expansion of Europe" to denote the closer relationships that have developed between countries in recent centuries—an expression that implies that India, China, Africa, and Japan have become mere extensions of the West. We Americans persistently insult countries that would like to be our friends by calling them "under-developed"—although it would be easy to point out certain respects, not unimportant as regards cultural life, in which the United States of America is one of the most "under-developed" of nations.

Such cultural chauvinism is based very largely on ignorance, on a sheer lack of knowledge of where our own culture really came from, and of the fact that some of the aspects of our civilization that we think of as most "modern" and "Western" were antedated by, and in part perhaps borrowed from, other parts of the world where we might least expect them. Sound and careful study of China's institutional history can do much to correct such ignorance.

I can illustrate this best from the things that I know because I happen to be working on them. We seldom think, for instance, of the importance of the technique of examination to our society. Yet we depend on examinations for the functional organization of our entire population, not merely in schools but in factories, in the administration of corporations, and above all for the staffing of the vast and intricately organized super-governments that dominate our world. If all examinations were abolished, our world could not long continue to function as it does. Yet examinations of any sort, whether oral or written, in schools or in government, seem to have been unknown in the Western world until the twelfth century. And the earliest known written examination administered in the West seems to have occurred in Berlin in 1693.

In China, on the other hand, we find discussions of the principle and theory of examination as early as the fourth century B.C. Written examinations were being extensively used in the selection of Chinese government personnel as early as the second century B.C. They were an integral part of the program of the Imperial University, an organization devoted to the training of government officials that seems to have been unique in the world. Soon after the beginning of the Christian Era that University is said to have had some thirty thousand students.

Evidence quite recently discovered shows a clear possibility that the institution of oral examination, used in the medieval European universities, may have moved from China to Europe by traceable stages through the Arab world. It is an interesting fact that the regimen of examinations in medieval universities normally involved three examinations taken at intervals, with the third examination leading to the highest degree—*just* as was the case in China at the same time. The evidence on the oral examinations cannot yet be said to be conclusive. But as regards written examinations it is clearly true that they did not appear anywhere in Europe until the Chinese examination system had long been known by Europeans. Berlin, where the earliest Western written examination seems to have taken place, was in 1693 a center of particular interest in China. And the work of Têng Ssŭ-yü has clearly shown the influence of the Chinese examination system on the establishment of civil service examinations in the British Empire (from which our American civil service examinations are derived).

Many political scientists insist that highly organized bureaucratic government is a product of modern technology and a unique invention of the modern West. Yet in China as early as the fourth century B.C. we find lively discussion of "government by technique," and of methods by which the entire body of officials may be organized and controlled, personnel may be selected and tested, performance may be evaluated by "merit rating," and control of the whole governmental body may be maintained by the use of reports and statistics. Some of the methods described in early Chinese works are astonishingly similar to some of those employed by, for instance, Frederick the Great.

The Roman Empire is considered the proverbial example of a great, stable, admirably organized government which brought about peace and cultural unification. Certainly the Roman achievement was remarkable, and no one who knows it will belittle it. But careful comparison of the Roman government with that of the contemporary Han dynasties (B.C. 206-220 A.D.), which ruled an even larger territory, leads to some interesting conclusions. The Roman government, racked by frequent *coups d'état,* was less stable than the Chinese. It did not unify its territories culturally to the degree that the Chinese did; and the cultural unity of China was not something given but something that the Chinese government consciously promoted by education, a force of which the Romans in general made little use. Roman government was relatively simple as compared with that of China. Roman officials appointed by the central government were far fewer than in China, and they were not selected and controlled by systematic techniques of examination and merit rating as was done in China. Whereas the Chinese government developed an elaborate bureaucratic structure, in Rome the Prefect of the Praetorian Guard became the highest administrative, judicial, and fiscal officer of the empire. Roman fiscal procedures were irregular, making much use of *ad hoc* levies and confiscations; there was little of the careful use of statistics and budgetary procedures, and the separation of the purse of the emperor from the treasury of the empire, that was practiced in China. These things undoubtedly have something to do with the relative longevity of the Chinese and Roman empires.

The investigation of the degree to which Chinese governmental techniques may have influenced those of the West is a little exploited field for future research. It is a well documented fact, for instance, that China's mode of government was known and admired in the Norman Kingdom of Sicily of the twelfth and thirteenth centuries. It may or may not be coincidence that it was in this same kingdom (in which examination seems first to have appeared in the West) that for the first time in Europe there was taken, in the words of *The Encyclopaedia of the Social Sciences,* "the decisive step from the feudal order of the Middle Ages to the modern state" with a highly centralized bureaucratic organization. The *Cambridge Medieval History* comments that this administration "preludes the civilized monarchy of modern times."

The volumes of Joseph Needham on *Science and Civilisation in China,* of debatable value in some respects, have the merit that they show clearly that even in the area of science and technology, in which there has been a tendency to suppose that the West has held a monopoly, China was in some ways and at some periods clearly in advance of the West, and has made far more contributions to our culture, even in these fields, than has been recognized.

No conscientious scholar would attempt, of course, to exaggerate the indebtedness of our culture to that of China. But the very fact that any such indebtedness exists (except for such things as paper, porcelain, tea, and gunpowder) is little known even among highly educated persons in the West. As a result we are unaware even of the origins of some of our own institutions, and we tend to conceive of "modern civilization" as a Western invention which we are now exporting to the rest of mankind. This leaves us poorly prepared to function in a world made small by rapid communications, in which mutual understanding and respect among peoples is more necessary than ever before.

The Sinologist, by bringing such facts to light and making them known, can contribute importantly to bringing about the conditions for successful intellectual (and political and economic) cooperation in "one world." But he can do more than that. The record of China's achievements is not a dead story faintly written on mouldering parchment. It is a legacy of a major segment of the human race, a record of the way in which an unusually thoughtful and resourceful people met and in many cases solved problems that recur for all of us. There is a very great deal of the utmost practical usefulness that can be learned from the study of the Chinese experience. Although it is true that the Chinese achieved more even in the realm of technology than is usually supposed, they have always been chiefly interested in man's life in society. Their learning is particularly rich, therefore, in such fields as philosophy, ethics, social psychology, and the theory and practice of government; thus it is well suited to complement our own tendency to concentrate on science and economics.

There is very real danger, however, that the world's knowledge and understanding of China's traditional learning will not merely not increase, but become more limited. That learning is recorded in a literature that is not facile; to understand it more than superficially requires years of training and careful study. The number of persons undergoing such training has dwindled steadily throughout the present century.

The emphases in Communist China are such that it could scarcely be expected, in spite of a nationalistic tendency to take pride in China's historic achievements, that a great many persons on the mainland would become really versed in the traditional literature. The recent tendency to depreciate the intellectual in Communist China would hardly provide incentive to thorough and objective scholarship. And what one reads and hears from those who visit the Chinese mainland, indicates that, in fact, not many scholars genuinely versed in the traditional literature are being produced.

In Taiwan the situation is, of course, very different. The attitude of the government is entirely favorable to Sinological studies. Practical support and encouragement is given to them through such institutions as the universities and the Academia Sinica. The results are clearly shown in the important publications and the excellent scholars that are being produced. I am well acquainted, for instance, with one young Chinese scholar, trained by the University of Taiwan and the Academia Sinica, who in my opinion is destined to rank with the best of Sinologists anywhere.

Nevertheless, the unfortunate effects of the climate of the contemporary world, which is distinctly unfavorable to Sinology, cannot be completely excluded even from Taiwan. The "cold war," not always so cold in the Taiwan Strait, does not provide the best atmosphere for research, nor one in which students are most likely to be attracted by a field that demands such devotion to books as does Sinology. Attention is inevitably focused on the problems of the moment and the technological studies designed to solve them. Just as the study of ancient history and of Greek and Latin has come to attract hardly a handful of students in the United States, so there is a tendency among students in Taiwan to regard China's tradition as passé and unprofitable. One of my American students, who spent two years at a university in Taiwan living in a dormitory with Chinese students, tells me that he was the only member of his group who went to see Chinese motion pictures; the Chinese students preferred the products of Hollywood. While excellent Sinologists are being produced in Taiwan, it is doubtful that under present conditions they are being reproduced at the rate that is necessary if China's learning is to be made available to the world, as it should be.

This Sino-American Conference on Intellectual Cooperation can perform important services in this connection. The proposal for the establishment of a research center in Taiwan seems particularly promising. It is not to be concerned exclusively with Sinology, I know; but since Sinology is my concern I shall speak of that, leaving other fields to those who know them.

A research center in Taiwan could perform several functions for Sinology. It would be of great importance, of course, to provide a place where Western Sinologists could readily meet with their Chinese colleagues. Even more helpful would be the possibility it would provide for advanced Western students to come into contact with Chinese scholars. And Chinese students of Sinology might find it of interest to meet and talk with Western students and scholars in the field. Carefully arranged programs of lectures and conferences, providing an international clearinghouse of ideas, could make the institution a really distinguished center of intellectual stimulation—this opens some really exciting possibilities.

It would be desirable, in my opinion, that such a center provide a few research fellowships for Chinese scholars, to permit them to devote their time to research. I would hope that such scholars would be willing to devote a very small amount of their time to consultation with advanced foreign students doing research in Formosa. From my own experience I know the great value to the Western student of some contact with Chinese scholars of distinction. It is to be hoped that fellowship stipends would be sufficiently generous to permit such Chinese research fellows to spend almost all of their time in unhampered prosecution of their research.

Too much should not be expected, of course, of any single undertaking. Yet if such a center were soundly conceived and adequately supported, much could be hoped for from it. The interchange between scholars and students of various countries would be of value itself. The enterprise could make possible solid and important contributions to our knowledge. It should also enhance the appreciation and understanding of Chinese culture in the West. And, by emphasizing the esteem in which that culture is rightly held, it might influence some of the younger generation of Chinese, making investigation of the achievements of the Chinese spirit seem comparable in its challenge and attractiveness to rocketry and space travel.

Such results would contribute to far more than Sino-American intellectual cooperation. They would play an important role in the construction of the world culture of the future.

SINO-AMERICAN INTELLECTUAL COOPERATION IN THE SOCIAL SCIENCES

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The subject matter of this memorandum is so vast that in a few short pages one necessarily can touch only on a few selected aspects of the problem.

Any proposals for furthering Sino-American intellectual cooperation must proceed against the background of certain realities which can only indirectly, if at all, be affected or altered by such cooperation. Among such realities must be cited the woefully low academic salaries in Taiwan, the comparatively poor research facilities in the social sciences, inadequate library resources in some fields, *e.g.*, political science, and the preponderant emphasis in the government's educational policy upon the development of the physical sciences, with very low priority accorded to the social sciences and the humanities.

The extent of intellectual vigor and vitality in the different social science disciplines will depend in large measure upon the degree of continuing progress made by the Chinese authorities themselves in resolving and alleviating these very difficult problems.

In the meantime, there may be a number of modest yet concrete steps which could be taken to broaden and deepen Chinese-American intellectual cooperation in the social sciences. By way of illustration four such projects are briefly outlined below.

1. *The organization of faculty training institutes in Taiwan*

Such institutes, run for about eight weeks during the summer, could serve as an effective means of acquainting social science faculties in Chinese universities with recent developments in their field. In recent years, such institutes, sponsored by the Social Science Research Council in the United States, have proved successful in up-dating and stimulating economics faculties in small colleges. Such summer institutes could perhaps be staffed by a faculty recruited from both Chinese and American universities.

2. *Establishment of a rotating faculty pool*

There are at the present time a number of eminent Chinese social scientists in American universities and research organizations. Some of these are United States citizens, some are permanent residents but do not yet have their citizenship, while others are on temporary visas of various kinds.

These scholars could be approached to find out whether they would be willing to come to Taiwan for a year or two at a time, on leave of absence status from their own institutions. All those who showed interest could be enrolled in a rotating faculty pool which would be made available to the universities in Free China, who in turn could fill some of their vacancies from this pool. The idea would be that after one member of the pool left he would be replaced by another Chinese scholar from abroad on a rotating basis. When the number would be exhausted in a particular discipline the rotation cycle would start all over again.

3. *Expansion of visiting professorships*

In addition to the rotating faculty pool referred to above, it might be very useful to increase the number of visiting professorships in the social sciences in Taiwan with American scholars invited for one or two semesters. The difference between this and the Faculty Pool would be that (a) the people in the latter would have some kind of a more or less regular tie with one of the institutions in Taiwan; the expectation would be that they would return from time to time, which would not necessarily be the case with the visiting professors; (b) the visiting professors may come for shorter periods of time; and (c) the visiting professors would not be necessarily Chinese speaking.

In considering this proposal it must naturally be borne in mind that lectures and reading assignments in English can effectively reach only graduate students and a few selected upper classmen at Chinese universities. Therefore, visiting professors could be of maximum usefulness in joint faculty graduate student seminars with occasional lapses into lectures for larger groups. In this respect, too, their function would be different from that of the Chinese scholars in the Faculty Pool, since the latter would not be confronted with language barriers.

4. *Initiation of special lecture series*

Every year eminent social scientists from China visit the United States and a number of their American counterparts visit Asia to teach, to do research, lecture, attend international meetings, or to participate in various technical assistance missions. The former usually visit only one or two centers in the United States, while the latter frequently fly over Taiwan without stopping there. Using this unexploited resource, it should be possible to build a most stimulating and worthwhile lecture and seminar series. These people could be asked to stop over in Taiwan anywhere from a few days to a few weeks. During this time they might hold seminars with faculty and graduate students in their own field and give one or two lectures for a large body of students. On this basis, one could bring to Taiwan twenty to thirty social scientists a year at minimum cost. At the same time the intellectual dividends accruing therefrom in the way of new ideas, new influences, and new stimuli are bound to be considerable.

INTELLECTUAL COOPERATION AMONG NATURAL SCIENTISTS

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INTRODUCTION

We are at the threshold of a new era in human cultural evolution. Man originated in one place, probably Africa, but he dispersed during the glacial age to various parts of the Old World. He arrived early in Europe and Asia, and most recently in the New World where he established notable civilizations before Europeans rediscovered the Americas less than five centuries ago.

During the long period of spread and diversification of the numerous races of mankind, little communication and cultural exchange occurred between the relatively isolated and thinly populated regions. All groups of men, however, increased their capacity to think, their capacity to communicate by symbols, their accumulated knowledge and wisdom, their capacity to cooperate within inclusive social organizations, and their ability to modify their environment, natural as well as social, to the benefit of themselves and their descendants.

Variations in the attainment of high civilization are still to be seen among various groups. Civilization can be measured and compared by the multiple processes that regulate optimal conditions of existence and continuation. Progress of mankind may be measured by the temporal increase of social regulation of optimal conditions. Social cooperation in understanding and applying the principles of existence and change of the individual man, his social organizations, and his physical and biotic environment is the process leading to progress.

Although the modern development of the natural sciences has had a large role in the most recent advancements of civilizations, many other aspects of human life, including the esthetic arts, humanities, philosophy, and the social sciences, are fully as important. I am emphasizing the natural sciences because this is my assignment, but the history of civilization provides ample indication that all aspects of human life and thought are interrelated and interdependent.

It is true that spurts of progress in one phase of human life are not always in perfect synchrony with other phases, and sometimes advances and even declines may occur in one functional portion of a society before another part exhibits conspicuous progress. World perspective shows that some societies are relatively primitive while others are relatively advanced. At the present time, however, humanity as a whole is becoming more coordinated, more interdependent, and more communicative. This surge of inter-action between peoples produces both the problems of antagonism, competition, and war, and the problems of integration, cooperation, and cultural progress as well.

This Conference is dedicated to international cooperation, and I suspect we all abhor international war and its consequent aftermath of human misery and degradation. We are particularly fearful of the danger of the destruction of civilization and of man himself implied by the known potentialities of large-scale nuclear war. There is no longer a possibility of victory for one nation in global nuclear and chemical war, and all who partake as well as all who remain on the sidelines may be annihilated or pitifully reduced to a state far worse than that of the savage and barbarian cultures from which we have all slowly emerged during the past thousands of years.

This potentiality for mass destruction and extinction is new in our time. It is the result in part of the increase in man's scientific knowledge without a commensurate increase in his social and political philosophy and skills. In other words, portions of our modern civilization are advanced, and portions are little changed from medieval or ancient times. We are faced with the immediate necessity of finding a reorientation of our attitudes, our perspectives, and our social practices. These differences in development are not only geographical, but occur within each culture. And I venture to say that each local culture has its special qualities and values that could be profitably shared with every other culture.

Early Chinese civilization was superior to that of the West, particularly after the decline of ancient Greece. In the realm of natural science, the Chinese remained superior up to the emergence of modern science in the sixteenth and seventeenth centuries in Europe. The Chinese first invented the magnetic compass, gunpowder, cast iron, paper, printing, and vaccination. They were the first to recognize vitamin deficiency diseases and many drugs valuable to modern medicine. Since the eighteenth century, however, Europe and America have forged ahead in science. Because of its application to military power, to industry, to transportation, to communication, to agriculture, and to medicine, modern science is now a major factor in the advancement of civilization as a whole in all parts of the world. In this respect, the United States is in the forefront of modern nations in stimulating scientific discovery and its applications to the welfare of mankind. But let us not lose sight of the interdependence of the United States with all other peoples of the world, nor the interdependence of science upon all other aspects of human life and thought. Our existence and our future is now known to be integrated with all nations and the totality of humanity.

I believe I am correct when I state that the policy of the United States and its people is determined by its awareness of global interdependence and cooperation. The well-being of all nations is intricately coordinated with our own. We hope that we can cooperatively assist humanity as a whole and derive great benefit to ourselves by so doing. The term "enlightened self-interest" has been used, but I believe our national policy is emerging into a policy for humanity as a whole that transcends "self-interest." Our traditions and our national attitudes oppose dominant imperialism and military coercion. We wish to foster a global voluntarily integrated community with full recognition of the contributions that can be given by each individual, each race, each people, and each nation. Some believe such ideals are unrealistic. I, personally, am of the opinion that they are eminently more realistic and more likely to survive than the blatant militarism and expansionism of Mussolini's Italy, Hitler's Germany, Tojo's Japan, or Stalin's Russia.

We are opposed in this positive goal of world cooperation by ideologies that subscribe to the notion that they can rise through the ignorance, weakness, and social disruption of other nations. I confidently believe that the positive goal of human betterment will gradually supercede the negative goals of national dominance based upon the subjugation and exploitation of other nations, or the rise of one functional class within a society by means of exploitation or elimination of other classes. Let us not be blind, however, to the fact that any given nation or society is not wholly constructive or wholly destructive. I am sure there are many constructive forces at work within Communist countries, and that many destructive forces are at work within the democratic and non-Communist nations. Our confident hope is that the true democracies will so demonstrate the practical values of cooperation between all peoples for the benefit and welfare of all, that they will survive in the struggle against authoritarian political dogmas that foster hypocrisy, intolerance, fear, hatred, and genocide. It is fervently to be hoped that this improvement in the welfare of humanity as a whole will occur with a diminution of national warfare and the relegation of war and warlike attitudes to past history.

Technical cooperation

Many view international cooperation in the natural sciences in terms of technical assistance for agriculture, health, industry, and the development of natural resources. This is a major form of international cooperation, and numerous programs are now in operation. Probably the one that might serve as a model is the Indo-American program initiated in 1952. From 1952 to 1958, assistance provided under the Indo-American Technical Assistance Program by the organization called the Technical Cooperation Mission (TCM) has amounted to $92,023,000 for agriculture and natural resources; $90,588,000 for industry and mining; $78,161,000 for transportation; $1,237,000 for projects dealing with labor; $51,304,000 for health and sanitation; $4,154,000 for education; $121,000 for public administration; $15,019,000 for community development, social welfare, and housing; $6,988,000 for technical support; $68,203,000 for agricultural commodities; and $1,286,000 for general and miscellaneous projects, about half of which was devoted to nuclear research. Altogether $409,084,000 was provided through 1958, and $11,500,000 was obligated for further work at the end of 1958. This aid by the United States was less than a third of the total aid from the U.S. in the form of export-import bank loans, development loans, Asian economic development loans, U.S.-owned third country currencies, wheat loans, loans and grants to India under Public Law 480, agricultural commodities distributed through voluntary agencies, flood and emergency relief aid, and milo (grain) assistance. The total U.S.

assistance to India consisted of both grants and loans totaling $1,604,500,000, of which $341,600,000 is repayable in dollars; $782,700,000 is repayable optionally in dollars or rupees; and $480,200,000 was in the form of grants. India is contributing its proportional share of support, administration, and intellectual guidance to developmental plans.

I submit that this summary of financial and technical cooperation between India and the United States is an example of an enlightened world policy on the part of both countries based upon the premise that the welfare of all peoples is necessary for the welfare of a single nation. I have no doubt that a part of this cooperation with India is designed to prevent the spread of communistic imperialism and exploitation, and to encourage the development of true democracy involving government by the people and for the people. The perversion of the words "imperialism," "capitalism," and "democracy" by the Communists in their immature and childish propaganda against the free nations, particularly against the United States, seems to me obvious. It is surprising that the Communists seem to rally so many around their blatantly false assertions. It is hoped that destructive competition between peoples and nations will evolve in time into constructive and progressive cooperation for the welfare and advancement of humanity, including peoples in poorly developed regions and peoples of industrial nations now divided by political and social policies. But let us return specifically to the international role of cooperation in the natural sciences.

Most of the technical cooperation supported by the United States aims at practical consequences for economic advancement. A much higher proportion of support should, in my opinion, be allocated to research, particularly to basic problems both in natural and social sciences. Let us consider, very briefly, the relation of applied science to basic science and the role of science in a humanistic philosophy.

Basic and applied science

The separation of sciences into "pure" and "applied," "basic" and "economic," is by no means sharp. So many overlaps occur and each motivation for scientific discovery nourishes the other to such a degree that it might be well to drop these categories. However, emphasis is often placed upon one to the exclusion of the other, so that is is necessary to indicate the relationships and overlap between them. The records also strongly indicate that governmental and public financing of scientific research and development in the United States places the emphasis upon immediate practical returns. I suspect the ratio of expenditure on scientific research (not development) is roughly about 70-75 per cent for practical and economic returns, 5-10 per cent for basic investigations of fundamental principles, and 20-25 per cent that overlaps both. Of course far more expenditure and energy are devoted to the applications of science than to investigations of any sort. My personal judgment is that the proportion of expenditures for basic research on the principles underlying physical, biological, and social phenomena should be increased to at least 20-25 per cent of all research expenditures, and that the total social energy devoted to increasing knowledge in general should be expanded at least ten-fold. At present, the physical sciences are supported more than the biological sciences, and investigations in the natural sciences (physical and biological) are supported far more than in the social sciences. Creative research and scholarship in the humanities receive a pitiful amount of public support, although the public expends vast amounts to enjoy the esthetic arts and literature and will also support religious institutions handsomely. Little is given for the support or encouragement of creative artists and writers, or for research or scholarship leading toward progessive evolution of religion or the humanities in general. In my humble opinion, research and scholarly investigations should be vastly increased for the good of all peoples, and an attempt should be made to balance the great fields of inquiry, study, and expression so as to integrate them in the attainment of wisdom, sound perspective, policy decisions, and positive action. Such reallocation of human energies and resources could be made without undue strain on the economy if we could reduce the present drain from destructive international military aggression and the internal wastes produced by personal selfishness, corruption, crime, and boredom. We need to find means of developing more individuals and more groups of individuals who dedicate their lives to constructive social ends. This objective is slow of realization and difficult to attain, but it is necessary if we are to avoid social catastrophies.

One method of increasing creative research and scholarship in the sciences and humanities without much added financial expenditure involves personnel policy. Qualified men should be appointed to academic, institutional, and governmental positions who are actively engaged in making additions to existing knowledge. Far too often we make teaching appointments, for example, without emphasis upon research responsibilities and capacities. Productive scientists and creative scholars should themselves have more voice in determining personnel policies and making decisions.

The sociology of science

Why does conspicuous scientific achievement have geographical and national correlations? What are the cultural qualities that foster or inhibit great discoveries? These problems in the sociology of science are poorly understood. About 1956, two Chinese-born theoretical physicists, Tsung Dao Lee of Columbia University and Chen Ning Yang of the Institute for Advanced Study at Princeton, undertook experiments on certain elementary atomic particles (the tau and theta mesons and their decay). A team of cooperative investigators participated, including Ernest Ambler and Drs. Hayward, Hoppes, and Hudson of the National Bureau of Standards, and a woman, Chien Shiung Wu of Columbia University. The experiments were designed to test the principle of parity in quantum physics, a theory that stated that there is no absolute distinction in nature between right and left. The results of the investigation overthrew the concept of parity and energy conservation in weak interactions. Drs. Lee and Yang received the Nobel Prize in Physics for these experiments. Why did these young

Chinese scientists receive most of their training and make such important scientific discoveries in the United States, rather than in their native land? I imagine there were many reasons, political and cultural, that even they would not be able to analyze fully. Also the experiments required pretty complex equipment, including radioactive materials, Geiger counters, very strong magnets, and extreme refrigeration, that only a limited number of laboratories over the earth could have furnished. One factor is evident—namely, that individuals with high intellectual capacity for scientific discovery are not confined to any particular race or region. Among all peoples of the world there must be great potential capacity that is undeveloped and unrealized to the disadvantage of all humanity.

Scientific research flowers in an atmosphere of public interest and respect. The research scientist is motivated by a complex of stimuli, probably the primary one being the desire to understand (often called curiosity). Second, he is encouraged by the respect of the persons with whom he is associated. China has a tradition of respect for the scholar and the intellectual that transcends that of the West. Third, the scientist wishes to provide an adequate living for his family and himself. Fourth, he is motivated toward social service, often through teaching or through economic and practical services. Fifth, he is probably stimulated by the awareness that he is partaking in a tremendously rapid advance of knowledge and, through knowledge, contributing to the welfare and wisdom of mankind as a whole.

Inasmuch as the scientist receives his knowledge from cultural accumulation, and adds new knowledge to the general body of information, he is constantly involved in a cooperative integration with past, present, and future international scholarship and investigation. This demands the development of social skills, attitudes, and communication. He must develop a sense of scientific ethics and honesty and channel his individualism toward constructive social activity and ideals. He must be dedicated to truth. Selfish individualism, power-seeking, grafting, corruption, antisocial activity, and criminality are not characteristic of those with high attainment in science, and it is easy to understand why this should be. Would it were possible to characterize political leaders as a class by the traits of the scientists! If selfish individualists attain political or social dominance in a nation, science is likely to suffer severely, even when many trained and able men are available. Without science based upon freedom of inquiry, modern civilization is not possible.

At the same time, the scientist is often a specialist and may lack perspective concerning the general problems of social life that surround him. There is no basic reason why specialization and broad human perspective cannot be compatible within the same scientist, and they sometimes are, but we must admit that breadth and depth of knowledge are not necessarily coordinated within the same person.

Individual scientists and research organizations

In the United States, scientific research is conducted by individuals associated in several types of organizations including national, state, and local governmental agencies, industrial laboratories, museums (mostly privately endowed), and universities (privately endowed and publicly supported). Until recently, basic research was performed largely in the privately endowed academic institutions, but in the last decade, both national and state agencies have increased their support of basic investigations.

Applied research is often motivated by immediate economic or military objectives, often for the particular advantage of a given nation or industry in competition with other nations or industries. There may be secrecy and lack of efficient cooperation between investigators of a common problem in these different competing organizations. While in basic research, particularly in academic institutions, there is much cooperation between scientists working within an institution, between those in different institutions, and between those in different countries. This cooperation and fellowship beween investigators often crosses the institutional and political borders, even when competition and war may erect temporary barriers to intellectual exchange. Because the mind of man is innately curious, contemplative, and social, individual scientists engaged in basic research are likely to cut across contemporary and temporal barriers to communication and cooperation. Such individuals, therefore, are the essential ingredients leading toward cultural cooperation and understanding. National, public, and institutional policies should aim at increasing the number and quality of individual creative scientists, supplying them with the necessary facilities for research, and allowing them sufficient time to conduct long-range investigations. The difficulties that many highly qualified scientists face in the most advanced countries are (1) lack of time for research from other duties such as teaching, public service, and administration; (2) inhibitions produced by interference with freedom of inquiry because of religious, political, social, or certain types of scientific prejudices; (3) lack of research facilities, laboratories, and equipment; (4) lack of adequate reference libraries; and (5) lack of financial remuneration commensurate with their training, skills, and service to society.

Suggestions for international cooperation between individual scientists

The potentially productive scientist may prepare himself as follows:

1. Obtain training in the techniques and problems of scientific research at the best universities.

2. Procure essential instruments and laboratory facilities necessary for the particular type of research.

3. Master sufficient language skills to read the major scientific languages for the field of study. These are usually English, German, and French. However, Russian is increasingly important, as are also Italian, Spanish, and Chinese.

4. Acquire or have access to scientific libraries, and exchange reprints with foreign scientists. Duplication by microfilms is now easy and cheap, and exacting scholarship is possible remote from the large libraries.

5. Correspond with the individual specialists in other countries concern-

ing the problems, techniques, and accomplishments in the fields of specialization.

6. Exchange materials and specimens with specialists and museums.

7. Organize local scientific clubs or societies associated with particular studies, hold meetings, give papers, take part in discussions.

8. Join societies, either local, national, or international, that publish journals. Contribute papers to these journals.

9. Attend meetings of national and international scientific organizations in the special fields of interest.

10. Take part in the discussions and expressions of collective interest, action, and support of scientific research.

11. Accept the various service positions when elected to offices in scientific societies or organizations such as council membership, treasurer, secretary, editor, president, etc. These positions usually are without salary and often rather demanding in time and effort, but are necessary for the development of scientific interests and research.

Suggestions for investigating local scientific problems

Many aspects of modern scientific research are expensive and require the support of large and wealthy organizations. Many problems under investigation throughout the world are universal problems for all humanity and have no geographical or local implications. On the other hand, many investigations are uniquely possible only in certain regions of the earth. These researches deal with data that show a geographical pattern.

Small institutions and small countries with small financial resources may contribute to scientific knowledge as a whole by emphasizing the investigations of local phenomena. These researches apply particularly to local geology, local geography, local faunas, local floras, local ecology, and local population problems (human and biological). It is far better for scientific advance as a whole to recognize a division of labor between scientists in different regions of the world. A greater contribution may be made by a biologist collecting, describing, and preserving his local plants or animals than in investigating, for example, the physiology of the white rat or the genetics of the common laboratory fruit fly *(Drosophila melanogaster)*. If the investigator is particularly interested in *Drosophila*, it would be better, in my opinion, for him to work on the local species. The behavior of an insect existing only on the island of Taiwan may be studied by a local comparative psychologist to greater general advantage than the behavior of the domestic cat. The rocks, minerals, and fossils of Taiwan may furnish more unique information of value to world science than an investigation of elementary particles in the atom of hydrogen, a subject better studied in laboratories with costly equipment. Wisdom in the choice of problems for research should recognize the uniqueness of the local environment and the financial limitations inherent in the present national and institutional organizations. It is still quite possible for important scientific investigations to be performed by individuals with a minimum of instruments, laboratory, or library facilities, and at very small cost. In due time we hope that international cooperation and world organization may reduce the geographical factors of financial support, but tremendous facilities and general support for the sciences will never remove the necessity for detailed study of highly local events in every part of this enormously complicated planet. Modern science shows the importance of detailed information on multitudes of facts, many of which can only be observed in particular areas.

Conclusions

The trend of the times is toward individual and national cooperation toward mutually beneficial ends. The natural sciences are advancing at a prodigious rate. Other fields of human interest may use the methods of scientific cooperation as a model for the progressive development of international intellectual cooperation in general.

Inquiry into the principles of reality in all fields of thought provides theoretical understanding and prediction of future events and trends. These are essential to human progress. An understanding of human nature in its entirety, and a perspective on our place in the universe and in the living world, are fully as important as the immediate practical application of scientific knowledge. A new synthesis of fields of human endeavor and a philosophy of progressive change is emerging. We may confidently predict that the maturing world civilization will be as superior to the present as the modern scientific civilization is superior to the prescientific medieval and ancient civilizations of both East and West.

REFERENCES

Houston, Howard E. (Director) (Foreword by Bunker, Ellsworth). 1959. *India's New Horizons.* U.S. Information Service, India. Albion Press, Kashmere Gate, Delhi, India. 96 pp.

Hwang-Tsong, Prof. Dr. 1958. *The Last Principle.* Taiwan, China. 70 pp. (China Institute of Neurology, 64 Tah-Tung Road, Chung-Lih, Taiwan.)

Merriam, Robert W. 1960. "Creativity, Biology, and Education." *American Institute of Biological Sciences Bulletin,* vol. 1C, no. 3, pp. 21-23.

Needham, Joseph. 1945. *Chinese Science.* Pilot Press, 45 Great Russell Street, London, W.C.1, England.

Needham, Joseph. 1954-59, *Science and Civilization in China.* 7 vols. Cambridge University Press, London, England.
  Vol 1. Introductory Orientations. (1954).
  Vol. 2. History of Scientific Thought. (1956).
  Vol. 3. Mathematics and the Sciences of the Heavens and the Earth. (1959).
  Vol. 4. Physics, Engineering and Technology (unpublished).
  Vol. 5. Chemistry and Industrial Chemistry (unpublished).
  Vol. 6. Biology, Agriculture and Medicine (unpublished).
  Vol. 7. The Social Background (unpublished).

Wilson, J. Tuzo. 1959. *One Chinese Moon.* Hill and Wang, New York. 274 pp.

Wolfle, Dael. 1959. *Science and Public Policy.* University of Nebraska Press, Lincoln, Nebraska. 81 pp. $1.50.

Wolfle, Dael (editor). 1959. *Symposium on Basic Research.* Publ. No. 56, Amer. Assoc. Adv. Sci., Washington, D.C. 308 pp.

INTERNATIONAL COOPERATION IN MATHEMATICS

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International cooperation in mathematics is so widespread and of such long standing that it is taken for granted among professional mathematicians. Already in Newton's time contacts among European mathematicians were so close that Bernoulli is said to have at once recognized an anonymous solution by Newton of an outstanding problem. Bernoulli said, "I recognize the lion from his paw." This tradition has flourished up to the present day. Nearly all mathematical journals are open to writers of all countries (including Soviet journals). New results in mathematics are distributed rapidly and widely, International Congresses are held every four years, correspondence is frequent among mathematicians with similar research interests, and among most countries there is a constant interchange of visitors. In the past two or three years, Soviet mathematicians have taken to visiting Western countries, Western mathematicians have visited the Soviet Union, and Soviet mathematicians participated in the 1958 International Congress. So far as I know, there has been little personal contact with mathematicians from Communist China.

It appears from the foregoing that contact between mathematicians from different countries is a quite natural activity which will flourish unless it is prevented by political interdict. Obviously governmental permission, if not encouragement, is a necessary condition for such contacts. Experience over the centuries indicates that it is also a sufficient condition.

It thus appears that cooperation between United States mathematicians and Chinese mathematicians will be easy to effect provided there are common research interests. It obviously does no good for people in totally different fields to be brought together, unless one of them wishes to be educated in the field of competence of the other. At the professional level, a visit by a mathematician to a foreign institution is ordinarily arranged by someone at the host institution who knows the visitor or his work and wants to bring the visitor for a period of concentrated work on some particular research program. If a formal program of visits were to be instituted, it would be appropriate to canvass the current fields of interest among Taiwan mathematicians and to look for United States mathematicians who would derive benefit from visiting or being visited by Taiwan mathematicians with the same interests. My experience has been that mathematicians are ordinarily eager to make such visits and work very hard on their lectures at the institutions they visit.

A second form of useful contact, still at the professional level, is to send experts in one field or another to inform mathematicians at the host institute of new developments and directions in research. For example, a mathematician working in the field of differential equations might visit a university and give a semester's course for advanced students and faculty on recent developments in his field. Such visits can be of enormous benefit, especially in view of the very rapid development now taking place in many different branches of mathematics.

Contact at the graduate student level is another obvious means of cooperation. All reputable mathematics departments eagerly accept bright students regardless of where they come from.

There are sometimes problems even with very bright students. One of these is inadequate or at least different training in the institution from which the graduate student comes. In the case of students with real potential, however, this obstacle is not insurmountable. It simply means that the student must spend at least an extra year in taking intermediate level courses before going into genuine graduate training. The second problem is money. I am sure that many very gifted people fail to receive training simply because funds for scholarships and travel do not exist.

I have no detailed proposals for projects to implement the kinds of mathematical cooperation described above. Plainly, what is needed is an interested person who would persuade some foundation to support the work and then do it. At the moment, I know of no such person. It is an unfortunate fact that there is a manpower shortage in mathematics at the present time. This shortage will evidently grow much worse in the next few years. All competent mathematicians, and even a few incompetent ones, have many more demands on their time than they can possibly fulfill. Everyone has to choose what he will do with his time and energy. It would undoubtedly be very worthwhile to establish a program of close Sino-American cooperation in mathematical training and research. The biggest problem is to find someone who feels that his best contribution can be made by promoting such a program.

SUGGESTIONS FOR THE STUDY OF CHINESE COMMUNIST HISTORY

by HSIAO TSAO-LIANG
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Since August 1, 1957, I have been carrying on, in Taiwan, a research project on Chinese Communist history. During the past three years I have completed or nearly completed the following three items of work:

1. A survey of documents on power relations within the Chinese Communist movement, 1930-34. A total of 268 documents with my analyses is lisited in this work, which runs to 574 typewritten pages, exclusive of some 150 pages of appendices. It is estimated that this volume contains a total of approximately one hundred and forty thousand English words. This work is now being edited for publication by the University of Washington Press.

2. A survey of documents on the Chinese Communist agrarian revolution, 1930-34. This work, which was prepared more than two years ago, consists of 95 items with my annotations, running to about two hundred typewritten pages. It is being revised and enlarged in the light of new findings. It can be completed in about two or three months.

3. A documentary history of the agrarian revolution under Chinese communism, 1930-34. This volume will include English translations of selected documents, together with my comments based on the survey of documents on the agrarian revolution mentioned above. The work of translation can be completed this month. It will take some time to check over the translation and write my interpretive statements.

Intimately linked with the above-mentioned studies are two additional items of work which have not been started yet. These are:

1. A monograph on power relations within the Chinese Communist movement, 1930-34. The above-mentioned survey of documents on power relations was originally meant only to prepare data for a monograph. It was intended for my own use, and not for others. As The Asia Foundation, which is financing my project, has expressed the wish that the preliminary results of my research be published first, I have considered its wish favorably. It is understood that the projected monograph on power relations will follow.

2. Publication of the full Chinese text of all the documents listed in both surveys. This work is based on an understanding that the unabridged Chinese text of all the documents listed in my surveys should be published for the benefit of those who may be interested. It is estimated that the Chinese characters of the documents on power relations number a little over a million, while those of the items on the agrarian revolution are about one-fourth of that number.

So much for the tasks I have undertaken to do thus far. In addition, I have in mind a number of other volumes, two of which deserve particular attention. These are:

1. A volume on the Chinese Red Army. The importance of a study of the Chinese Red Army, from which Mao has derived his power, cannot be overestimated. There should be no worry about materials on this subject, which are estimated at many times more than those on the agrarian revolution. I do not need to do the writing for this volume myself. My colleagues can do it with my help. With a full knowledge of the materials on hand and after three years of intensive study of the Kiangsi period, I am sure that they are competent to do a good job of it. This proposed study will be a companion volume to those on power relations and the agrarian revolution referred to above. Without it the picture of the Kiangsi Soviet cannot be complete.

2. A volume on what is known as "blind actionism," a term used to denote the Chinese Communist movement under the Ch'ü Ch'iu-pai leadership of 1927-28. As originally planned, my work should have started in 1927. As the bulk of materials available in Taiwan are on the 1930-34 period, I have decided to start work on that period first. After several important volumes on that period have been brought out, I think it is necessary to work out a volume on the crucial period of 1927-28. A study of this period is all the more urgent in view of the fact that successful documentation of blind actionism cannot dispense with the help of the ex-Communist, Chang Kuo-t'ao, who is already an old man in no good health, and we have no time to lose if we want to enlist his help. Chang Kuo-t'ao, as the documents show, played a vital role in the revolution of that time. I will work on this volume myself, or in collaboration with my colleagues, and I am pondering over the question: Which shall come first, this volume on blind actionism, or the monograph on the power relations of 1930-34 as described previously?

In this connection, I should like to explain briefly the position of Chinese Communist sources available in Taiwan in which all students of modern Chinese history are interested.

The material under my direct use is the collection of Chinese Communist sources in Vice-President Ch'en Cheng's personal files, which was gathered on the spot by Nationalist troops under his command during the anti-Communist campaigns in Kiangsi in the early thirties. I discovered this collection by chance on the very first day of my work. I have had this collection catalogued. It is estimated that it contains approximately thirteen hundred items. This collection is undoubtedly the most complete collection of Chinese Communist sources from the Kiangsi Soviet in the world. It contains, for example, an almost complete file of the newspaper, *Red China*, organ of the Chinese Soviet Government, running from the first issue of December 11, 1931, to the last issue of October 20, 1934, with scattered issues missing. It also contains a set of the magazine, *Struggle*, organ of the CCP Central Bureau of the Soviet Areas, running from February 4, 1933, to September 30, 1934, with the total of some seventeen scattered issues missing. It should be remembered that this *Struggle*, published in

Kiangsi, is not the same *Struggle* that was published in Shanghai, and that this magazine is very rare in the outside world except for a small number of scattered issues in, say, the Hoover Library. From the very beginning, The Asia Foundation, as well as some individual scholars from the West, has expressed the hope that this collection of Chinese Communist sources from the Kiangsi Soviet can be microfilmed. I have no doubt that this can be done pretty soon.

Another major collection of Chinese Communist sources available in Taiwan is the collection of the Bureau of Investigation, the equivalent of the FBI in China. It is claimed that this collection contains more than thirty thousand items of Communist materials, most of them on the current situation. I have made an exhaustive study of the documents in this collection that fall within the scope of my work, and I have the impression that they are the best part of the whole collection. The documents I have drawn from this collection came from the CCP Central Committee which, in the early thirties, was first located in the Shanghai underground and later transferred to the Communist base in southern Kiangsi.

Still another collection of Chinese Communist source materials in Taiwan is the collection belonging to the army, which is an unexplored collection as yet and is therefore little known to the outside world. I have made a brief inspection of that collection but found little data for my work on the Kiangsi Soviet. I feel that it may contain some useful material on the Yenan period and after.

If there is any data on the Chinese Comunist movement prior to 1927, it is concentrated in the KMT archives in Taichung, of which Dr. Lo Chia-luen has charge. With his permission I would point out that a total of 112 scattered issues of the magazine *Guide Weekly*, CCP organ under the Ch'en Tu-hsiu leadership, can be found there, the whole file of the magazine being approximately two hundred issues. More important, one has good reason to believe that the individual KMT archives themselves must contain valuable data on the Chinese Communist movement before 1927 because the Communists operated within the Kuomintang during the 1923-27 period.

There was a general feeling, before the start of my work three years ago, that there was probably not much Communist data worth studying in Taiwan, especially because most of the key statements of the Chinese Communist Party had presumably been published abroad. Today, after a lapse of three years, the feeling seems to have changed so much that it is generally held that Taiwan has the richest and most complete holdings of Chinese Communist source materials in the whole world.

By contrast, I should like to point out that, contrary to the views of some Western observers, a large quantity of Chinese Communist data is left unused here in the United States. (For an example of Western views, see Prof. John K. Fairbank's Foreword to Edgar Snow's *Random Notes on Red China (1936-45),* Harvard University Press, 1957.) I myself have drawn many documents from the Hoover Library which are not available in Taiwan. It is my feeling that, with a little more effort, one can discover a great number of Chinese Communist documents in the United States which have never been used, or adequately used, before.

My suggestion for digging out more Chinese source materials from Western holdings seems all the more significant in view of the fact that the key statements I have used for my research are also available in the West, but they have been overlooked or misunderstood in pioneer works. It seems to me that this has made a great difference between the pioneer works and my study. For instance, two of my basic conclusions reached are: (1) The Li-san line of 1930 was not shaped in Moscow, and (2) Mao gradually lost his power in 1931-34. As my manuscript on power relations of 1930-34 shows, the key statements governing these two conclusions can also be found in the West, only they have not received due attention.

Of course it is not for me to say whether my conclusions are right or not. It will be up to others to judge whether I am wrong or whether I am telling something new and revolutionary. The mere fact that my conclusions differ from those of others, though the key statements are the same, cannot be accidental. Certainly I have in my hands many new documents which have helped throw considerable light on the key statements. But that has not seemed to me to be decisive. The decisive factor seems to lie in the fact that I have studied documents exhaustively rather than selectively. The importance of an exhaustive study of documents cannot be overestimated.

There is a common phenomenon in the field of Chinese Communist research that many people are busy gathering material but few are really engaged in research. Which scholars are devoted to the study of Chinese Communist history? How can they avoid or minimize the danger of overlooking or misunderstanding important documents? These and related questions are the more important because the Communist way of thinking, like the Communist jargon, is extremely difficult for Free World scholars to understand.

On the basis of my own experience in Communist research, I wish to make the following observations with a view to the promotion of international cooperation in the study of Chinese Communist history:

1. More scholars should be mobilized to study Chinese Communist sources available in the West, many of which are left unused, and to study them exhaustively. It follows that each scholar or group of scholars should study a short period and had better study it from different aspects. It would appear that a textual study of documents in order to find out their exact meanings and their relations with other documents is essential in the first instance. Old documents and old assumptions must be re-examined.

2. It seems that there are numerous source materials on the Chinese Communist movement in Japan. Needless to say, they should be explored and studied. In this respect, Japanese scholars can be expected to make a real contribution. I am wondering if our efforts to promote Sino-American cooperation in the field of Communist research should not be expanded to include Japanese scholars.

3. It is admitted that Taiwan is the greatest reservoir of Chinese Com-

munist historical materials in the world. There can be little doubt that they should be made available to all scholars for study. In this respect, I should like to make the following suggestions under the present circumstances:

It seems to me that at the present stage there should be set up only a few small projects in Taiwan, each of which should undertake to study one period of CCP history. In fact, I have already made this suggestion in Taiwan, advocating division of the study into three periods, namely, the Ch'en Tu-hsiu period, the Kiangsi period, and the Yenan period. This way of dividing labor can serve practical purposes, though each of the three periods is a little too long for study. It must be remembered that a division of the study of CCP history into the above mentioned three periods corresponds roughly with the distribution of Chinese Communist sources in three or four different localities in Taiwan. The Ch'en Cheng collection, which I am studying, is almost exclusively concerned with the Kiangsi Soviet. Data on the Yenan period can only be found in the Bureau of Investigation collection, with the possible addition of the aforesaid collection belonging to the army, for which an independent project may be necessary in view of the remote location and the seemingly large size of the collection. As mentioned above, data on the Ch'en Tu-hsiu period is almost entirely in the KMT archives in Taichung. I do not think it practicable to put all these collections together in one place at the present time.

As a matter of fact, my colleagues and I have confined ourselves to the study of the Kiangsi period over the last three years. It is likely that a friend of mine is going to work on the Yenan period. The study of the Ch'en Tu-hsiu period must be done by somebody else.

I personally do not think it advisable or feasible to set up a centralized agency in charge of Communist research in Taiwan at this juncture. But I have no objection to the formation, if necessary, of a liaison or coordinating committee for the purpose of harmonizing the actions of scholars or groups of scholars in the field, taking care of visiting scholars from abroad, etc. This committee must not interfere with research work under any circumstances.

Equal importance should be attached to research by Chinese scholars and to publication of materials. It is impossible to exaggerate the importance of studying the Chinese Communist movement from the Chinese point of view. A Chinese scholar can be as objective in the study of Chinese communism as any other scholar in the world. It is understandable that a Chinese scholar is anxious to play an active role in Chinese Communist research, which he rightly regards as his own problem, and that as an independent scholar he cannot be expected to act as though he were merely supplying materials to others. This is the standpoint which I am persuaded is the right one for Chinese scholars to take.

On the other hand, of course, a Chinese scholar should also try what he can to make Chinese sources available to his fellow scholars the world over. Historical materials should belong to all historians, and it is no use to keep them on the shelves to gather dust. If materials are too massive for publication, they may be selected and printed in full text for the benefit of those who may be interested. Important documents may also be microfilmed in case of need.

Promising projects should be placed on a long-range basis. It need hardly be pointed out that Communist research must be a prolonged effort and that the prevailing annual budgetary system is inconvenient for research work. The inconvenience of an annual budget is all the greater if the change of personnel is frequent on the part of the financial supporter. It seems, therefore, imperative that a research project of proven effectiveness be supported by a long-range budget. Needless to say, a scholar would be appreciative of any assistance a foundation would give him in his work.

Arrangements should be made for foreign scholars to work in Taiwan. I have no doubt that foreign scholars are welcome to study Chinese Communist materials in Taiwan; but so long as there is not a set of regulations governing the use of such materials, it is likely that inconveniences may occur in individual cases. It is necessary, therefore, that regulations for this purpose be worked out as soon as possible. In the absence of such regulations, prior arrangements should be made in each particular case so that intellectual cooperation can be achieved without hindrance. Physical accommodation is also a problem to scholars from abroad. It is my feeling that the Chinese and foreign scholars working in Taiwan should be placed on an equal footing: equal opportunity of research, equal access to material, equal pay, equal protection of work, etc. I am also inclined to think that a foreign student who comes to Taiwan to study Chinese Communist sources should be given an opportunity to settle down long enough to study exhaustively what sources he may find there.

In conclusion, I would emphasize that as communism is an international movement, the study of it must also be an international effort. The Chinese Communist problem presents a challenge to modern scholarship. If the challenge is to be met at all, it must be understood on the basis of historical fact. This will be a most stupendous task which cannot be accomplished without long-range planning of international cooperation.

TWO NEEDS FOR SOCIAL SCIENCES IN CHINA

by Hsu Dau-lin
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Mission for a behavioral scientist

Considering the Social Sciences in China, I feel less inclined to speak of cooperation and mutual benefit than to plead outright for aid and help; to send out an S.O.S.

Since the Communist occupation of the mainland, few Chinese social scientists escaped to the Free World, and all the precious Chinese publications in these fields have become inaccessible. New publications are frighteningly inadequate. Up to the present moment, the total number of Chinese books on psychology is five, and three of these are reprints from books published at least fourteen years ago (1934, 1946, 1947). Chinese books on sociology number three, the important one a reprint from a book of 1936. Nothing has been written on anthropology. Periodical literature of a sociological or psychological nature is virtually unknown.

What is needed to overcome this deplorable state of anemic apathy is both a strong stimulant and a strong tonic. I think the best way is to send a well-qualified social scientist to China for a long term. His work should be like the work of a missionary; his task to preach and convert, rather than to teach and lecture; his aim to recognize and study the situation and to devise ways and means to mobilize and organize available forces for the promotion of these disciplines in China.

Our social scientist should be of the behavioral science strain. In present China, the nature and importance of interdisciplinary research is not yet universally known, and the problem of promoting social sciences is itself an interdisciplinary one. The social scientist to be sent should be provided with ample means for living and travel, but should be bound to no programs and schedules. He should be his own master in the choice of means for his over-all goal. I believe his activities would be highly rewarding to him; and the report and proposals he would make after his term had ended would have vast consequences.

I would like to have our Conference give serious consideration to the possibility of sending to China an eminent behavioral scientist as a cultural missionary-at-large, for a term of at least three years. (I suggest that James Miller or Sol Tax should name the candidates.)

Basic books translation project

After the above statement on the scarcity of Chinese books in the social sciences, it will readily be seen how very urgent is the need for translating and publishing such books.

Of course, Chinese scholars qualified to do the translating are by no means many, but none among these has ever tried to translate because all are overburdened with various other means of making a living. But no intellectual discipline can take root and grow in a country unless it is made to speak the language of the country; and the discipline comes to fruition only when it is cultivated by various peoples of different language and thought structure. Considering the fact that Indian Buddhism received much development and enrichment in China, we might predict similar Chinese contributions to the social sciences. A well-worked-out project for translating basic books might be the first step toward this.

A friend of mine, Mr. P. C. Chun, has just submitted such a project to the Ford Foundation. In framing this project and selecting the books to be translated, he has been supported by a number of American scholars, each an eminent leader in his field (notably: Nagel, Morris, Kaplan, Parsons, Kluckhohn, Leontif, Merton, Kroeber, Deutsch, Lasswell). The project envisages the translation of twenty-four books, each costing circa $4,700 to $4,950.

The project strongly suggests parallel ones for other disciplines and allows certain supplementations and extensions. It is now still under consideration with the Ford Foundation, which will decide only after its representatives (Drs. Everton and Barnett) have visited Taiwan and Hong Kong (Autumn, 1960). I hope our Conference will take notice of this issue and, in case of its rejection by the Ford Foundation, will attempt to undertake its final realization.

EDUCATION AND RESEARCH IN GEOLOGY IN THE REPUBLIC OF CHINA

by JUAN VEICHOW, *Dean*
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No one would expect the geological education and research in Free China today to be a smooth and uninterrupted prolongation of scientific activities of the days before the Sino-Japanese War. International communism and the Second World War have penetrated much more deeply and have had far more disastrous consequences than, for instance, in other basic sciences.

The first seeds of the catastrophe that has overtaken Chinese scholarship were sown when the Sino-Japanese War started in 1937. Many university teachers were driven from the country; many of them never returned. Those who remained saw their productive powers fettered by war's destructive fury. The year of 1946 did, indeed, bring a turn in these affairs but no real amelioration of the situation. The spread of communism in the whole country in 1949, and finally the division of China by the Bamboo Curtain, deprived the geologists of much material for study and limited greatly their field of exploration. Free China has made great strides in the field of economic reconstruction, but it would be unjust to expect a similar miracle in education and scientific researches. Scientists cannot absorb so rapidly the spiritual and intellectual shock of the collapse, the bewilderment of communism, and the destruction of war. Scientists have to build up within themselves the essential destiny of the nation and the epoch. It takes time for the altered view of life to penetrate the scientific sphere if the effect is to be genuine and lasting.

At first, Chinese geological work, challenged as it was by harsh fates, was in a state of flux. There were few valid major pronouncements which had it in themselves to become documentary, still less, classic. It did, indeed, require courage, after such crippling spiritual and material losses, to reopen laboratories and renew university life with which teaching and research could be bound up. The work began slowly, but it has gathered strength from year to year.

One must take cognizance of these facts if one wishes to evaluate correctly the science development in Free China today. There still exists, of course, the old scientific heritage, which returned to its rightful place as soon as external conditions reverted to normal. Scientific societies were refounded, periodicals resumed their publication, and sales of science textbooks reached high figures; numerous illustrated volumes and reproductions kept alive the interest in sciences in schools, in lecture halls, and in bookshops. But in addition to that, it is precisely in such places that one finds intellectual unrest, ferment, and hunger. Nor has everything beneath the surface remained unchanged. There is much new life, many an important initiative, and many an experiment.

Geological sciences in the mainland days

It would seem to be appropriate to take as a starting point the past works on Chinese geology. Careful study of geological literature has shown that such a course is not only appropriate but it also reveals, in a quite surprising manner, the unusual development of geological sciences during the last half century.

The development of geological sciences in China was commenced before the establishment of the republic, and during the period of 40 years from 1863 to 1904, all the work was done by foreign geologists, geographers, and naturalists. Many geological reconnaissances have been carried out in the vast expanse of Chinese territory. In fact, the very first geologist who set his feet on Chinese soil was an American named R. Pumpelly; and as a result of his extensive trip, a book was written, titled *Research in China, Mongolia and Japan,* in which he recognized the essential mountain structure of Asia—the Sinian system of Elevation. However, the most important geological study in this early period was contributed by E. Von Richthofen, a German geologist who entered China in 1868, and in four years covered 14 Chinese provinces by traverses; he published his work as *China* in five quarto volumes, a work which should be credited as the basis for later development of geological sciences in China. At the turn of the century, many foreign scientists traveled in China and helped in many ways the elucidation of nature's mystery in this part of the world. For instance, the French concentrated their efforts on the southwestern part of the country, the English on Tibet, the Russians on Chinese Turkestan, and the Americans on China proper. Special tribute must be paid here to two American geologists, B. Willis and E. Blackwelder, whose works, appearing in *Research in China,* really laid the foundation of paleontology, which flourished extraordinarily in later years.

Although training for geological personnel in China under the impetus of the increased number of foreign visitors is known to be earlier than the establishment of the Geological Survey, the regular school for producing graduates in geology was started in 1919 in Peking University. Many similar institutes were later established in various parts of China. Up to 1949, the profession possessed more than five hundred *bona fide* geologists who were capable of doing independent work.

Due to its intrinsic character, geology as an earth science is developed initially through regional investigation in connection with mining of valuable earth materials. Thus a governmental organization such as the Geological Survey takes the initiative in many nations in the promotion of geological sciences. The Chinese Geological Survey was established in 1912 under the Ministry of Industries and was vested with responsibilities of exploration and mapping of useful earth products. From 1923 to 1940 there were seven provincial geological surveys organized in Honan, Hunan, Kwangtung-Kwangsi, Szechuan, Kuichow, Kiangsi, and Fukien.

The only research institute of geology worthy of its name known in the mainland days was the Institute of Geology, Academia Sinica, in Nanking.

whose function was to do research on fundamental geological problems. However, since theoretical investigation in geology could not be carried out entirely without field observation as a basis, and since survey and research are inseparable, the Institute of Geology also did a great deal of work in the field, just as those Geological Surveys, central or provincial, with their research laboratories in full running, contributed on both the theoretical and practical aspects of the science of geology. Another research institute, known as the Peiping Research Institute of Geology under the auspices of the Peiping Academy of Sciences, was closely affiliated with the Geological Survey of China. It was located in the same city, and the same research members comprised the staff.

These two organizations cooperated in executing their research plans and in publishing research reports.

Thus, both geological education and research were centered in two cities, Peiping and Nanking. Great contributions on various phases of geology have been made by members at the Peking University, Geological Survey of China, and the Institute of Geology, Academia Sinica. On paleontology alone the Survey published *Palcontologia Sinica,* a well-known professional paper with international standards, in 114 volumes from 1922 to 1947, containing papers dealing with plants, vertebrate and invertebrate fossils, and human relics. The Geological Survey of China also published regularly a *Bulletin,* mainly on regional geology, in 36 volumes; *Memoir,* on special subjects of mineral resources, petrology, and structural geology, in 32 volumes; and *Mineral Industries,* in seven volumes. The Institute of Geology put out at this period 26 volumes of *Contributions,* seven volumes of *Memoir,* seven volumes of *Reports.* Special publications were issued categorically on fuels, earthquakes, geophysics, and soils. Many geological papers appeared also in miscellaneous periodicals such as *Science, Natural Sciences, Geographical Magazine,* and *Mining Journal.*

The Geological Society of China, which was organized in 1922, was at once an active promoter for the development of geological sciences in China, especially in dealing with international exchange of scientific knowledge and in fulfilling international obligations. The Society maintained two publications: the *Bulletin* and the *Geological Review.* The first volume of *Bulletin* appeared in 1922 with papers written in three different foreign languages, but *Geological Review,* issued in 1936, was entirely in Chinese. With the vigorous support of its own members and the encouragement of sister organizations all over the world, the Society found its growth in owning a building in Nanking by 1946, with fully stocked library, lecture halls, and seminar rooms, and it became a center, intellectual as well as social.

It would be fitting to bring this review to a close following this appropriate reference to the contributions which Chinese geologists have made to the science of geology. The locomotion has indeed turned on full speed for geology in China, at least in the minds of the well-informed, to permit of the possibility of real scientific value stemming from professional virility which is not only acknowledged by fellow scientists but cordially welcomed by them. It is not without pride to say that the geological sciences in China stand foremost in the field of natural sciences, a fact which should not be treated without due emphasis for the benefit of future progress.

Recent development in Taiwan

Among the centers of higher education in Taiwan, there is only one institution aimed mainly at the training of geologists; that is the Department of Geology, National Taiwan University. This institution, having the right to award degrees and habilitate university teachers, has spared no effort to restore normal teaching conditions after the retrocession of the island to the Republic of China. The number of young people wishing to study geology in the Department was as large as that of other countries which had sent their youth to war. At first it was necessary to restrict the number of students entering the Department because of a shortage of accomodations. But from 1955 on, when the Department had doubled its scope and when a research institute of geology was established, restrictions were gradually removed. Statistics show that some 78 students were majoring in geology in the winter semester of 1959-60. Of this total, six attended graduate school. The majority of these students have to exist on modest allowances from their parents; some are without any allowance at all. More than one fifth are obliged to take up some form of employment in order to defray the cost of study or to cover part of their expenses. Only a very small number can hope to receive scholarships from donations. The most important bodies granting financial aid to exceptionally gifted students are the various industry corporations under the control of the Ministry of Economic Affairs. These industries, because of a shortage of geologists in service, now provide 14 scholarships from resources placed at their disposal by the Ministry.

The greater part of scientific research work in China is today, as always, essentially the province of universities. However, in the field of geological research, both the Institute of Geology, National Taiwan University, and the Geological Survey of Taiwan share the responsibility. Even today these research centers are suffering from certain handicaps, and not all difficulties have been overcome. Although they are in working order, the amount of money at their disposal has not kept pace with new and increased demands made upon them. Not only is there a shortage of facilities caused by lack of financial resources, but also many professors and research scholars are overburdened with teaching and administrative responsibilities that limit their activities. Any increase in the number of university teachers and research workers and additional financial assistance, both of which are called for under present conditions, is impossible because of inadequate financial allocations which are often hardly sufficient for teaching alone. It is for this reason that anxiety is felt for the training and preservation of a body of young geologists to fill the ranks of Chinese geological researchers. There are far more tempting opportunities for them in more promising and better locations. It is hoped that the Fulbright scholarships, now operating in China only for mathematics, physics, and chemistry in the field of natural sciences, will open the doors to geologists, enabling students, research workers, and professors alike to spend a period of study beyond our frontiers, and in particular to encourage contacts with those in the United States.

Centralization and uniformity are essentially foreign to the spirit of scientific research, but the very fact that scientific research is carried out by varied institutes makes it necessary to introduce some wider organization. This was especially true in Taiwan in view of the fact that some coordination was needed due to the poor financial position of individual institutes in negotiation with authorities both at home and abroad. In 1957, the Geological Society of China was refounded in Taiwan with these aims, carrying on the traditions of a society of the same name in the mainland days. The society has now about one hundred members, of which nearly all are working as professional geologists.

The fact that the geological sciences in Taiwan have made great strides in the past ten years with such a small body of professionals is evidenced by the number of research papers published in various journals. Aside from papers published in foreign periodicals, three publication media are in existence:

1. *Acta Geologica Taiwanica*, Institute of Geology, National Tiawan University, 8 volumes.
2. *Bulletin of Geological Survey of Taiwan*, 9 volumes.
3. *Proceedings of the Geological Society of China*, 3 volumes.

A wealth of topics have been treated, ranging from fossil funnas over sedimentary petrology to the geology of igneous and metamorphic rocks, tertiary volcanism and structure. The total volume of papers which have appeared per individual has so far not been surpassed by any other profession in Free China.

Thanks to the support given by the China Foundation, The Asia Foundation, and the National Council for Science Development, the trend of progress in geological sciences will surely continue. The realization that the harnessing of all resources possible for research is not a superfluous luxury in time of need is slowly gaining ground; indeed, with China's industrialized economy and unusual density of population, the matter has become one of vital importance. There can be, then, no doubt that Chinese efforts must be intensified considerably if we are to maintain our place in intellectual and economic competition with the other nations of the world. The experiences of the past ten years of reconstruction justify the hope that Chinese scholarship—once the requisite material help has been provided—will show itself fully equal to this competition.

International cooperation

Before dealing with future prospects, reference must be made to earlier developments resulting from international cooperation. Although the seed of geological sciences sprouted in China during a period of political upheaval from 1903 to 1916, the real growth started after 1922 when the late Dr. A. W. Grabau, formerly professor of geology at Columbia University, came to teach in Peking University and helped to re-organize, at the same time, the paleontology laboratory of the Geological Survey of China. Dr. Grabau, a man who can rightfully be regarded as the dean of geologists of China, if not, indeed, of a wider sphere, was the sole inspirer for producing a large number of able paleontologists, 34, to be exact, out of a profession of 500. His research on *Ordovician Cephalopods,* published as the first volume of *Palaeontologia Sinica,* was therefore an encouragement to all who followed his footsteps and shared his lively interest. Chinese paleontologists made contributions in the following years in practically all fields of paleontology, vertebrate and invertebrate. Among the many investigations, one of the most impressive was the discovery of Pekingman in 1929, a project sponsored by the Cenozoic laboratory of the Geological Survey of China, and partly financed by the Rockefeller Foundation. The real importance of this discovery is quite obvious without further narration to any scientist, but what is more significant is the fact that the excavation was completed with adequate financial aid and was done in a very scientific and systematic manner under the direction of Chinese geologists. Without the financial aid and the able direction of the Chinese geologists, the collection of original materials of great scientific value would have been impossible.

Other examples of international cooperation may also be found in the early period of the history of the Geological Survey. In 1916, J. G. Andersen, a Swedish geologist, was engaged as consultant on the exploration of mineral resources. He made a survey of the iron ore deposits in the northeastern provinces and in central China. In 1930, the China Foundation, a Sino-American joint establishment, helped the Geological Survey of China to build a soil laboratory for investigation and classification of soil types, the first attempt of its kind ever made within Chinese territory.

While many other minor projects have resulted from cooperation, space will not allow citing them here. Suffice it to say that cooperation in scientific studies can be comparable with recruiting foreign capital for investment in the economic sphere. A prerequisite for such an attempt is the so-called local investment climate The success of cooperation in geological studies in the past is attributed to the climate set up by an able man, Dr. V. K. Ting, the father of Chinese geologists, who had the vision and foresight for the creation of enterprises and made the necessary contacts indispensable for cooperation. The desirable goal of full and mutual cooperation will depend much upon close personal association.

Due to the inherent weaknesses of the science of geology, almost every geologic problem shows some shade of local color, which is equivalent to saying that the fundamental principles of geology as such must be developed through accumulation of data from every corner of the earth and by checking with every available feature all over the world. It is a disadvantage to a local geologist to have a desire to familiarize himself with features nonexistent in regions where he is stationed, and it is almost impossible for him to study the continental structures, for instance, without crossing many national boundaries. Therefore, all phases of geological studies are dependent upon knowledge of local features which must be obtained by communication, exchange, and travel. A particular region or province on the earth will bear special importance to certain geologic problems. The island of Taiwan would be a good location for studies on petrographic provinces, marginal geosynclines, ocean trenches and sediments, and coastal ranges of continents, just to name a few illustrations. It goes without saying that international cooperation should be considered as the best means for the advancement of geologic sciences.

A proposal for the establishment of a standing committee for international cooperation is defiinitely welcomed by this profession. Since the committee does not intend to maintain any research institute of its own, it would be desirable to see its task as that of supporting specific research projects by making grants toward essential purchases, subsidies for research assistants, grants toward travel expenses and toward the cost of publication of research findings, and the allocation of money to provide scholarships.

If these manifold efforts meet with success, research activity in geology in China will be able to overcome the state of mortal weakness and paralysis in which it found itself after the war. All branches of geology, including geophysics and geochemistry, which are at the present moment not very well developed, will become active, and the wall of isolation which kept Chinese geologists apart from other members of what is essentially a community of scholars will be broken down. Chinese researches will be linked more effectively with those of other countries and will once more attain a highly valued position in the international community, not only by virtue of the old tradition, but also through the labors of recent years.

THE KOREAN RESEARCH CENTER ANNUAL REPORT

Excerpts from the Annual Report (1959) of the Director of the Social Sciences and Humanities Research Center of Korea, Seoul

(Printed and distributed at the Conference through the courtesy of The Asia Foundation)

INTRODUCTION

The year 1958-59 was a year ef progress and change in the short history of the Korean Research Center. The Center changed both its name and location and established itself firmly on a legal and physical foundation. The purchase of the present three-story building near the West Gate (with a special grant of $40,000 from The Asia Foundation, HW 8,000,000 from the American-Korean Foundation, and several million *hwan* from local sources), coupled with its incorporation as a foundational juridical person, marked a great advance in the history of the Center.

The Center formally opened its new building September 22, 1958, and was honored with a Presidential visit on the following day. A week later, on September 29, the former Social Sciences Research Library was formally incorporated as The Social Sciences and Humanities Research Center of Korea, Inc., to be known as "The Korean Research Center," and its objectives were broadened to include studies in the humanities. Thus the objective of the Center "shall be the advancement of knowledge in the fields of the social sciences and humanities" (Article 3 of "Articles of Endowment").

During the year the holdings of the Center library increased in books from about nine thousand to over thirteen thousand volumes; microfilms from less than one hundred to over four hundred reels; and music from about eight hundred to over two thousand titles. The collection of periodicals is unique in Korea both in its quality and quantity, and the Korean Collection of microfilms, pre-annexation newspapers, and Western books on Korea constitutes the best library on Modern Korea to be found in Korea today. In addition, the Music Collection of the Center is regarded as the best music library in Korea. Activities, such as the holding of lectures and seminars and inviting foreign scholars to Korea, were significant contributions the Center has made to the academic advancement of Korea. In this year the Center for the first time saw its own publication, *The Korean Studies Series*, Vols. 1 and 2, and more publications are to come from 1958-59 fellowships. The service of the Center was concentrated on the library, the primary function being to provide scholars with research materials and reading facilities.

Almost all the graduate students in the social sciences and humanities in the Seoul area make use of the Center library. Both information service and loan of research materials were significant services to various institutions and academic communities (both foreign and local), and the loan of music scores to individual musicians and musical organizations was an important service which no other organization in Korea could offer. The transfer of the Royal Asiatic Society's Korea Branch Library to the Korean Research Center is an indication of the Society's recognition of and interest in the Center. The Center has been recognized by academic communities (foreign and local) as a center for the advancement of Korean studies, and its library has been and is the model library for the newly established (and to be established) libraries in Korea. And there are still a lot of activities and services the Center can do for scholars both in Korea and abroad.

Regretfully, however, over-all budgetary limitations, caused by the increased cost of Center expenditures, forced many projects and plans to be dropped. In order to keep abreast of new publications and current periodicals and to meet the growing demands for more Center activities and services, the Center needs more funds than ever before. But the support the Center receives from The Asia Foundation cannot be expected to continue indefinitely, and funds will have to be sought locally. The Center, during the year, did receive several million *hwan* from universities and individuals connected with the Center. But it is only a token amount when one looks at the over-all Center expenditures. In order to meet the growing needs and problems of self-support, the Director of the Center presented to the Board of Trustees a plan for a five-story building, which, however, because of lack of funds, did not materialize. Although the Center has succeeded, with The Asia Foundation support, in securing both its legal status and its own building, one important problem remains unsolved. This problem is to find some means for permanent self-support, which may be achieved by securing an income-producing endowment, buildings, or enterprises. It is, therefore, earnestly hoped that this coming year (1959-60) will be the year of the establishment of the Center on a permanent basis.

I.

The Acquisition of Materials

General

During the year the Center continued its efforts to systematically procure works valuable to research in the social sciences and humanities. While reference and research materials were added to all fields of study represented in the Center's collection, special emphasis was placed upon three points: acquisition of materials relating to Korea, especially primary source materials; expansion of the Center's collection of materials dealing with the humanities; and an attempt to balance the Center's subscriptions to academic journals to encompass a more representative collection in the social sciences.

Books purchased totaled 2,019 volumes, while some 1,538 volumes were received through the gift and exchange program. The Center currently receives 202 journals, of which 176 are paid subscriptions and 26 are received through the gift and exchange program.

The acquisition of music ran extremely high, some 382 scores being purchased and 1,057 scores being received through the gift and exchange program, mostly through the Music for Korea Program.

The Center's microfilm collection was expanded a great deal with the purchase of 326 reels of microfilm, bringing the microfilm collection to 405 reels.

As of July 31, 1959, the Center has 13,334 volumes of books and bound periodicals, 405 reels of microfilm, 2,160 titles of music scores, and several thousand unbound items (periodicals).

Purchase

The fiscal year began with a large commitment to the music program and to the purchase of microfilms, which necessarily restricted the acquisition of materials in other sections; however, notable acquisitions were made in each division of the Center's collection.

Every effort was made during the year to fully utilize the funds available in the procurement of decisive research materials for those fields of study which are currently most active. This was done in order that the immediacy of requirements in a few fields could be combined with general procurement of research materials in all divisions of the Center's collections.

In general, the purchase of books from abroad fell considerably, some 312 books being purchased in the international market. Local purchase was further broadened, taking advantage of a more favorable rate of exchange which reduced costs and made local purchase advantageous over foreign purchase for many items. Some 1,707 volumes were procured locally. It has been deemed wise to strengthen gradually the Center's collection by utilizing the most economical means of purchase. During the past fiscal year, the Koreana section was considerably strengthened by this method, whereas two years ago an unfavorable exchange rate made international purchase the more economical with the result that the general collection was strengthened.

The microfilm program

Following its acquisition of a microfilm reader, the Center quickly endeavored to procure those microfilms which would be of value to scholarship for Korean scholars and for visiting foreign scholars. Limited budgetarily from attempting to build up a collection of microfilms encompassing every field of study represented by the Center's other facilities, it was decided to concentrate upon materials relating to Korea and to procure other materials as the needs of scholarship demanded and the budget permitted. Some 79 reels of microfilm were available in the Center as of July 31, 1958.

Continuing this program, the beginning of the fiscal year saw a heavy commitment for the procurement of microfilms, and some 326 reels were subsequently acquired during the fiscal year. In addition to unpublished Ph.D. dissertations, some of the more notable items acquired were:

1. Diplomatic Instructions of the Department of State, 1801-1906 (for Korea, China, and Japan).
2. Dispatches from U.S. Ministers to Japan, 1855-1906.

3. Minutes of Treaty Conferences between U.S. and Japanese Representatives, and Treaty Drafts, 1872.
4. Dispatches from U.S. Consuls (from Korea, China, and Japan) during the last half of the nineteenth century).

A total of 326 reels of microfilm were purchased during the year, which brought the Center's microfilm collection to a total of 405 reels as of July 31, 1959.

The Center's greatest need continues to be the equipment necessary to participate actively in microfilming documents scattered piece-meal through public and private collections about the country. It is indeed difficult to estimate the stimulus to scholarship that a microfilming program here would create, both among local scholars and scholars abroad, were such materials available. The need for such facilities can only be reiterated with the earnest hope that future budgetary considerations will not further delay this urgent requirement.

The Koreana Section

Aided by a more favorable exchange rate, the Koreana Section gained some particularly valuable materials during the year. While the majority of the material in the Koreana Section has been concentrated largely from the period of the Japanese annexation to the present, this trend was reversed during the past fiscal year. Primary source materials were especially sought. This was aided by the general increase in interest during the year which resulted in the photolithographing of many historical works, diaries, and official histories by local publishers and societies. One notable acquisition was the addition of the 47-volume history of Korea, *Chosen-shi*. A total of 794 volumes were added during the year, and as of July 31, 1959, the Koreana Section had a total of 2,658 volumes.

The Center has continued to increase its collection of Korean newspapers. This effort was more than aided by the very generous donation of newspapers by Mr. Bong-young Yu. In addition, 722 bound volumes of newspapers were added to the Center's collection during the year. The Center has, without doubt, the most complete collection of pre-annexation Korean newspapers extant.

Music Collection

The fiscal year saw a major growth in the Center's collection of music scores and music books. This was done both through purchase and through the gift and exchange programs; however, the bulk of the music in the Center's collection continues to originate from the Music for Korea Program, directed by Mr. James Wade and sponsored by the American-Korean Foundation.

At the end of July, 1958, the Center's music collection totaled 807 scores (including 86 books on music), and by the end of July, 1959, this had grown to 2,160 music scores. The Music for Korea Program procured and forwarded 895 scores during the fiscal year, and this number was swelled by the donation of 162 scores from the United States Information Service in Seoul.

The 382 titles and 72 music books purchased during the year fell into three groups: (1) Music purchased for a specific performance; (2) music scores ("parts") purchased to complete sets of music; and (3) music purchased to fill out the Center's collection.

While the donation of music from abroad has been remarkable, it falls mainly into the older "classics," leaving the more modern composers less well represented. This, together with item (1) above, has been the main criterion for music purchase. As in the past, the purchase of music has been done through a special advisory committee composed of some of the leading musicians in Korea.

All major orchestras, operatic companies, choral groups, and other musicians in the Seoul area are currently aware of and participating in the Center's loan program for music. Examples of recent performances which were made possible by the Center's music loans were: *La Tosca,* performed at the Seoul Opera House in October, 1958, by the Seoul Philharmonic Symphony Orchestra; and *Cavalleria Rusticana* and *Pagliacci,* given at the Seoul Opera House in June, 1959, by the Seoul Philharmonic Symphony Orchestra.

In addition, preparations have been made for the presentation of *La Boheme* this coming September.

In order to keep musicians and appropriate organizations aware of the availability of music in the Center's collection, a special "Music Newsletter," giving the lists of newly acquired scores, records, and books pertaining to music, is distributed.

The Gift and Exchange Program

The Gift and Exchange Program concentrated upon broadening the scope of its exchange and increasing the number of institutions and individuals with whom it has exchange relations. To further this objective, an article was written for the *Indo-Pacific Exchange Newsletter* outlining the aims of the Center and its desire to enter into exchange relations with similar institutions. At the same time a checklist of materials available for exchange was sent to universities in Asia, Europe, and the Americas. Paralleling this external effort, a letter was written to the chief librarian of every major university within the country, advising him of the facilities available at the Center and of the materials available for exchange with his institution.

Contacts were made with individual scholars in several nations. Materials were sent to scholars of international reputation, like Prof. Andre Eckardt, University of Munich; Drs. Hu Shih and Chen-yu Tao, Academia Sinica, Taiwan; and Dr. Michael C. Rogers, University of California at Berkeley; and subscriptions to journals were given to several scholars locally. This resulted in a mutually beneficial program, for these scholars in turn donated gift volumes, copies of articles they had authored, and even unpublished materials which were, dependent upon the wish of the donor, either retained in the Center as part of the permanent collection or distributed to scholars locally.

On the institutional level, the most notable acquisiton was undoubtedly the 933-volume set of the *Dynastic Histories of China*, received through the kind generosity of the National Central Library in Taiwan. The momentousness of the occasion was fittingly represented when Ambassador Wang of the Republic of China officially presented the collection to the Center in ceremonies held in the General Reading Room of the Center on June 3, 1959.

A valuable acquisition (21 volumes) was received from The Library of Congress of the United States in April, 1959, which contained an 8-volume set of the *Digest of International Law* and many diplomatic documents. Such acquisitions, balanced by apt purchasing, have strengthened considerably the Center's collection in the field of law, especially in international law and international relations.

The program has endeavored to obtain academic journals via the exchange program in order to decrease expenditures in this field. It was through these endeavors that during the past fiscal year the Center regularly received some 26 journals from nine institutions in four countries.

Active exchange relations were instituted with 48 institutions and individual scholars in some ten countries during the past year. A total of 1,271 volumes (journals not included) were received through the exchange program, and some 267 volumes were received as gifts. The Center in return sent around 233 volumes through the exchange program, while gifts, including extra copies of periodicals, ran to 469 volumes and 135 journals, the latter mostly distributed to local scholars.

The gift and exchange program was also successful in the music department, 895 scores and nine books on music being received as gifts through the Music for Korea Program. The Seoul USIS donated 162 music scores to the Center's permanent loan collection. Thus, the total acquisitions through the gift and exchange program totaled some 1,538 volumes and 1,057 music scores, more material than had previously been acquired through the program since the establishment of the Center nearly three years before.

The Library of the Korea Branch of The Royal Asiatic Society falls only partially within the scope of the gift and exchange program, in that the books concerned are merely stored in the Center and open to use by the members.

The library of the KBRAS, seriously depleted by losses during the war, had generally been inaccessible to both members of the KBRAS and to others concerned. Through the suggestion of Dr. George Paik and Mr. Gregory Henderson, both officials of The Royal Asiatic Society, Korea Branch, the library was removed from its storage place in the basement of the American Embassy, and suitable space was procured for the collection in the Koreana Section of the Center. While not an extensive collection, the library contains some very valuable materials, especially the almost complete sets of the *Transactions of The Royal Asiatic Society's North China, Korea, and Japan Branches.*

The provision of facilities for books which remain the collection of another institution provided a new field of activity for the Center, and it is hoped that similar collections will find their place in the Center where they will remain conveniently accessible to the members of the institution concerned as well as to members of the Center and to visiting scholars.

Service of exchange desk

Occasionally it happens that a scholar, in the midst of research, discovers that a book necessary to his work is not available in any library accessible to him. In such cases the Center has taken one of two courses of action. In the majority of cases, the book is ordered as a part of the Center's permanent collection. However, where the value of the book as reference material is not restricted and when the scholar concerned desires to purchase the book, the Center purchases the book for the scholar, allowing him to buy the book with *hwan*. Materials otherwise inaccessible are thus provided to further research in progress.

(Part II. of this article has been omitted.)

III.

USAGE AND SERVICES OF MATERIALS

Of all sections of the Center, the Reading Desk has the most frequent contacts with the users of the Center's facilities. While the Reading Desk has, in the past, been restricted to that of a "stack search room," this will be broadened in the future into a more direct role in research work through guidance, aid in the selection of materials, and search for pertinent materials which may be available. In short, this desk will encompass the duties of Reference Librarian as well as its present activities.

Selection of readers

Careful selection of members from many applicants is most important to maintain the scholarly atmosphere. The membership is drawn from a wide body of professors, graduate students, advanced scholars, and sometimes selected senior students whose training enables them to utilize the Center's facilities profitably. Readers are required first to read the Library Regulations and to agree to abide by them at all times.

Reading hours and library fees

Reading hours are generally from 9:00 to 21:00 hours, except during the months of August and December due to the severity of the weather.

The Center began in February, 1959, to charge fees to the members. This was decided upon at the February Board meeting, and it was agreed that the fees should be HW300 for a month and HW3,000 for one year.

Information service

The news of the arrival of new books, scheduled seminars and other pertinent information is available to the members through the bulletin board located just outside the General Reading Room.

Loan service

While the principle of lending books is recognized, it has been found necessary to limit loans. At present only one-week loans are allowed to a few advanced scholars and institutions whose credit and necessity of loans are recognized by the Director of the Center. The Center library is operated on the basis of an "open stack" system which gives readers full usage and access to all facilities within the Center.

During the year 46 book loans were made, as well as 38 loans of music scores, from the Center.

The Center is proud of its collection of old newspapers, which is regarded as the best collection of pre-annexation newspapers extant in Korea today. Last March *The Whang-sung News* and *Dai Han Daily News* (1905-06) were loaned to the Tai-baek Movie Production Company for making a movie called "The Emperor Ko-jong and the Martyr Ahn, Joon-gun," which was shown last April and created a sensation all over the country. Thirty-eight music loans were made during the fiscal year, which brought an income of 82,000 *hwan* to the Center. Although most of these music loans were made to the K.B.S. Symphony Orchestra, Seoul Philharmonic Symphony Orchestra, and Korean Air Force Band, the Center made a number of loans to individual musicians.

Readers

During the past year, the Center issued 80 regular library cards and 172 temporary library cards. As of July 31, 1959, the Center had a total of 831 readers as its members. In addition, the past year saw an increase in the number of readers using the facilities of the Center. During this year a total of 15,473 persons used the Center's facilities, with a daily average of 52.3, as compared with a total of 14,246, with a daily average of 43.3, in previous years.

IV.

ACTIVITIES

Research fellowships

The Korean Research Center is currently granting several research fellowships (up to hwan 500,000 each) annually to eligible Korean scholars who are interested in research work in the fields of social sciences and humanities for the advancement of culture and education in Korea.

These fellowships are granted to advanced scholars, *i.e.*, the applicants must have at least an M.A. degree, or have at least three years of research or teaching experience at institutions of higher learning or research organizations of public recognition. The resulting papers are published by the Center, and during the year, two research papers were published as *The Korean Studies Series,* Vols. 1 and 2. It is felt that the research resulting from these fellowships, as well as the encouragement given to Korean scholars, is the most significant contribution the Center has made.

Seminars

In order to promote the further intercultural exchange between Korea and other nations by providing closer contacts with foreign scholars, the Center sponsored seminars during fiscal 1958-59 as follows:

1. On July 2, 1959, Dr. Donald W. Treadgold, Professor of Russian History, University of Washington, conducted the following seminar: "Modern Russian and Soviet History."

2. In July the Fulbright scholars conducted a series of seminars:

a. On July 8, Dr. Ardath W. Burks, Associate Professor of Political Science, Rutgers University: "The Study of Asia in the United States Today."

b. On July 9, Dr. H. Gordon Hulfish, Professor of Education, Ohio State University: "Essential Democratic Qualities: Their Meaning for Education."

c. On July 10, Dr. H. Leland Varley, Professor of English Literature, University of Massachusetts: "Current Trends in the American Literature."

The Center paid all expenses for Fulbright scholars during their stay in Korea from the time of their arrival until the time of their departure. During their stay in Seoul, they visited several universities in the Seoul area, giving lectures in their own fields. They also visited, under the Center's guidance, such places as the Secret Garden, Court Musicians, etc., and learned much about Korea.

Publications

1. *The Korean Studies Series:* The following research papers, approved under the fellowship program during fiscal 1957-58, were published as *The Korean Studies Series,* Vols. I. and II.

a. Series Vol. I.—"A Study of Marriage and Divorce in the New Civil Code of Korea."

b. Series Vol. II.—"The Framework and Structure of the Korean Economy."

c. "The Study of Politico-Economic Thought of Korean Scholar Chung Yak-yong, 1762-1836" will be published as Vol. III. The research projects of fiscal 1958-59 are in preparation for publication.

2. *Newsletters:* The Center also publishes two newsletters: *The Library Newsletter* and *The Music Newsletter.*

a. *The Library Newsletter* contains the lists of books, microfilms, and other research materials newly acquired, and is distributed to all members of the Center, all university libraries, and other research organizations in Korea.

b. *The Music Newsletter* also announces the newly acquired music scores and books on music. It is distributed to chorus groups, orchestras, etc.

THE INSTITUTE OF MODERN HISTORY, ACADEMIA SINICA, ITS PAST AND FUTURE

by KUO TING-YEE, *Director*
INSTITUTE OF MODERN CHINESE HISTORY, ACADEMIA SINICA

I.

ORGANIZATION AND FACILITIES

The Institute of Modern History, Academia Sinica, was organized in 1955. It has a staff of research fellows, associates, assistants, and office workers totaling 24 persons, plus eight corresponding fellows abroad. The Institute's new building is situated at Nankang, about six miles from Taipei. The Institute is financed by the government. In addition to the regular salaries of the staffs, an allowance of $10,000 per year is granted for purchasing books and for publication expenses.

The library of the Institute has 21,000 Chinese volumes together with 2,500 volumes in Western languages, 2,400 in Japanese, 1,200 bound volumes of newspapers, and about one hundred current periodicals. There are more than five hundred pieces of manuscripts of eminent persons, like K'ang Yu-wei and others. Besides, the collection of some 200,000 volumes kept by the well-furnished library of the Institute of History and Philology is open for the staffs of this Institute.

The most valuable materials are the diplomatic documents which the Institute received from the Ministry of Foreign Affairs in 1955. They total 224 cases of documents, of which all but 35, dealing with the period after 1927, are open for research. The late Ch'ing documents of the Tsungli Yamen and Wai-wu-pu (1850-1911) total 6,300 volumes and 300 packages, classified in 25 sets, most of which have been copied, called *Ch'ing Tang* or the "Clean Documents"; those of the Peking Government in the Republican period (1912-1927) total 6,400 volumes and 1,100 packages, in 32 sets, of which a small part have been copied; the rest of them remain in original forms. In addition there are 258 original treaties, 317 maps of national boundaries and 170 of leaseholds.

II.

WORK SCHEMES

The research work of the Institute is centered on Modern Chinese History beginning with the nineteenth century, with special attention to the Western impact and its reactions in China during this period.

Briefly speaking, the major works in the past few years are as follows:

1. The Institute's first task dealt with listing and indexing. Works completed are: (1) A union catalogue for all the library collections in Taipei dealing with Chinese modern history, totaling 7,000 Chinese works, 500 in Western languages, 1,000 in Japanese, and 200 periodicals of all kinds. (2) A comprehensive catalogue in 1,660 pages, listing and sum-

marizing briefly each document and giving tables of contents for the volumes of Clean Documents *(Ch'ing Tang)* of the late Ch'ing period. (3) A card index with some thirty thousand entries for the unbound diplomatic documents of the Republican period, but this laborious task is still incomplete. (4) An index to the *I-Wu Shih-mo* compiled on 21,000 cards, a task sponsored by Dr. David N. Rowe; a classified table of contents for the same book prepared by this Institute on 9,000 subject cards. (5) A table of contents and 1,700 microfilms of the original treaties. (6) Seven hundred photostats and prints, and a table of contents of the maps.

2. The second task of the Institute was to compile and publish the materials, especially the diplomatic documents.

For the *Ch'ing Tang*, the publication appeared in photolithographic editions. For each collection, the work involves paginating, punctuating, and proofreading; adding both Chinese and Western dates, the sender and the receiver of the documents, and brief summaries of each document; and making classified tables of contents and chronologies to be appended. The volumes published and those ready for publication are as follows: (1) *Documents on Maritime Defense 1860-1911:* published in 1958, in nine volumes totaling 7,000 pages. These are materials related to the subject of the modernization of China. (2) *Documents on Modern Mining 1865-1911:* will be published this coming fall in seven volumes totaling 5,000 pages. These are documents relating to the negotiations between China and the foreign nations over the mining rights, and the organization and operation of the mining companies. (3) *Documents on Sino-French Negotiations over Indo-China 1875-1911:* a series of materials dealing with the Sino-French War and the negotiations after the war. It will be published in six volumes of about four thousand pages, if the financial difficulties can be overcome. (4) *Ch'ing Documents on Missionary Cases 1860-1911:* it is one of the most complete collections. The compilation of the first series (1860-1866) is completed and ready for printing. It will appear in two volumes, totaling 1,500 pages.

For the original documents and other materials the work involves the collection and copying of the materials, treating with the method used by the *Ch'ing Tang* then sending off for publication. Those already published and ready for publication are as follows: (1) *Documents on Sino-Russian Relations 1917-1919:* a collection of the diplomatic documents of the Peking Government, consisting of six series. *Outer-Mongolia,* one volume with 746 pages, and *The Chinese Eastern Railway,* two volumes, with 1,004 pages are already published. The volumes soon to be published and the approximate number of pages in each are: "The Russian Revolution and the Sino-Russian Relations in General," two volumes, 1,500 pages, "The Northeastern Frontier and its Defense," two volumes, 1,000 pages, "The Frontier Defense of Sinkiang," one volume, 400 pages, and "The Siberian Expedition," one volume, 450 pages. (2) "Documents on Sino-American Relations 1784-1874," compiled with the materials from the Ch'ing documents and other books, scheduled for printing within this year. It will appear in two volumes, with 1,200 pages. (3) "Modern Chinese Conceptions of the West, 1821-1927": a selection of writings showing the knowledge and attitudes of Chinese individuals with reference to the Western nations, peoples, and cultures. The first volume (1821-1860) has been compiled, with about five hundred pages.

3. The third task is to collect materials, which include the following projects: (1) The Oral History: to record on tape in planned interviews the narratives of individuals active in the history of the Republican period. This project was started in 1959. Nine persons have been interviewed. (2) The clipping file of current newspapers, started in 1955. There are 300 completed volumes. At the same time, the writing of the daily chronology of the important events is underway.

4. The fourth task for the research workers of this Institute is the monographic studies and the discussion-seminar meetings. Each research worker has his own monographic studies, which are mainly related to his compiling jobs. The results of these studies are being submitted to the seminar meetings for discussion and criticism. Seventy seminar meetings of this kind have been held. Thirty monographs are completed or are being completed.

III.

FUTURE PLANS

The future program of the Institute is directed along four major lines:

1. To enlarge the scope of the compilation of reference works, including: (a) a volume providing tables of contents and indices for important Chinese historical works concerning the modern period; (b) an index of articles in major historical journals and periodicals; (c) completion of the cataloguing of diplomatic documents of the Republican period; and (d) compilation of annual chronicles of important events in the history of the Chinese Communist Party.

2. To continue the compilation of collections of documents and other materials which include the completion of: the "Modern Chinese Conceptions of the West 1861-1927"; the "Documents on Sino-Russian Relations 1920-1927"; the "Documents on Sino-American Relations 1875-1927," and the "Documents on Missionary Cases 1867-1911."

3. To carry out the plan of "Oral History" on a larger scale, scheduled to complete interviewing sixty to seventy persons during a five-year period.

4. To emphasize the monographic studies. The staffs of the Institute have already been heavily engaged in compilation work in the past few years. It is hoped that henceforth they may devote half their time to monographic research. The research will be directed generally along the line of the study of thoughts and institutions.

IV.

COOPERATION PROJECT

The Institute of Modern History, a governmental organization in itself, owes a good deal to the assistance so far rendered by the cultural as well as academic institutions in the United States. In 1955, when the Institute began taking shape, The Asia Foundation donated 800 volumes of books and some forty periodicals in Western languages, and a total of $2,000 for the purchase of books in Chinese. With the fund totaling $15,000, offered by The Asia Foundation in 1956 and later in 1957, the Institute has published the *Documents on Maritime Defense* (nine volumes), *Documents on Modern Mining* (seven volumes), and *Documents on Sino-Russian Relations* (four out of nine volumes).

The close similarities in nature in which the research on Chinese modern history has been carried out by this Institute and by the Far Eastern and Russian Institute, University of Washington, led both parties to reach, in 1957, a formal agreement on cooperation. From the University of Washington would come annually a total of $4,000 as an aid to this Institute on the project of compiling and researching diplomatic documents. The fund, small as it is, really works wonders. Not only did it help to improve the living conditions of those who took on this task, but it has ever appeared as a source of encouragement. Within a couple of years in the past, the Institute has brought to light the *Documents on Sino-Russian Relations* in nine volumes, *Sino-American Relations* in two volumes, and nine research monographs. Reports have been submitted at regular intervals to the Far Eastern and Russian Institute by this Institute on tasks that were in progress, and with them views were also exchanged. The result has turned out to be satisfactory.

The China Council for East Asian Studies of the Harvard-Yenching Institute has supported this Institute with an aid of $3,400. The compilations of *Documents on Sino-French and Indo-China Relations, Documents on Missionary Cases,* and *Modern Chinese Conception of the West* are carried on under this cooperative program.

Most of the American students now in Taiwan are in pursuit of their studies of Chinese modern history. Much has been done by this Institute to help them with the collection of materials and the discussion of problems. And in the same way it has extended its assistance to scholars abroad through correspondence.

The study of modern Chinese history is a relatively new field. The depth and width of this subject is enormous. There is much work to be done. It is really necessary that a close relationship be established between the intellectual circles in China and the intellectual circles in foreign countries. The Institute of Modern History would add its full strength, no matter how limited it is, for its realization.

As to the original materials, this Institute possesses a large quantity of the diplomatic documents. So far, less than one-tenth have been compiled. Among the untouched documents, there are: *Documents on Commerce 1860-1927, Documents on Custom Duties and Likin 1864-1927, Documents on Debt and Foreign Loan 1867-1927, Documents on Treaty Negotiation and Revision 1860-1927, Documents on Korea 1864-1910, Documents on Boxer Up-rising and Indemnity 1900-1927, Documents on World War I and the Paris Conference 1914-1920, Documents on the Washington Con-*

ference 1921-1923, Documents on the Shanghai Incident 1925-1927, Documents on the Sino-Russian Negotiations 1852-1917, Documents on Sino-Japanese Negotiations 1912-1927, Documents on Foreign Advisers 1912-1927. These materials, totaling 200 million characters, are open for research studies.

The Institute, although with a small body of working staff, is glad to cooperate with scholars abroad. Some people have observed that Western scholars in general are thorough thinkers—that they have very keen minds and often bring out new and interesting problems, which are inspiring in historical researches, while Chinese scholars are more likely to be fact searchers, interested in the authenticity of historical materials, which is also important in historic research. If the two parties exchange their points of advantage, working on planned projects cooperatively, a more perfect and more correct result in the study of modern Chinese history may be obtained. The conclusion so arrived at will be published in both the Chinese and English languages. It will bring us a contribution of far-reaching effect.

NOTES ON SINO-AMERICAN INTELLECTUAL COOPERATION

by Simon Kuznets
DEPARTMENT OF POLITICAL ECONOMY, JOHNS HOPKINS UNIVERSITY

Intellectual cooperation can perhaps be most concretely furthered if those who are to share in it are quite frank about how *they* can be helped. I am, therefore, proposing to indicate specifically what I, and perhaps many of my colleagues in the field of economic research (although I cannot speak for them), would hope for in the way of assistance.

My interests, and those of a sizable group of social scientists in this country, have been in the field of comparative economic growth of nations. Let me take this theme as an illustration of what one could hope to receive as the yield of intellectual cooperation.

1. There is limited knowledge among economists in this country of the demographic and economic structures of other societies. In particular, could one learn more of the demographic and economic trends, past and prospective, in Taiwan? Of the kind of economic and social problems that it faces in achieving satisfactory and sustained economic growth? Have there been many studies, and are the results available to scholars in this country? If there have not been, can a more systematic cooperation with scholars in this country help make such studies more feasible?

2. The study of economic and political developments on the Mainland is of obvious importance and of equally obvious difficulty because of the scarcity of data, the misleading character of much of the data that are available, and of barriers of language. Is is possible for scholars in this country to profit from whatever studies have been made in Taiwan of the political and economic evolution of Mainland China in the pre-Communist, and particularly during the Communist, period? Would it be desirable and feasible to intensify such study, taking advantage of the absence of language barriers and perhaps of a better supply of materials in Taiwan?

3. I do not know how much knowledge of the Japanese language and how much of a source of Japanese literature and data have survived in Taiwan. Perhaps there is among scholars in that country considerable knowledge of both Japanese language and history—I suspect much more, relatively, than in this country. The analysis of Japan's political and social evolution since the Meiji era is far from a complete and well-studied story, and there is much to be learned from it if one could only overcome the barriers of language and the difficulty of assembling and interpreting the data. Is there any possibility that more extended cooperation with scholars in Taiwan might help the scholars in our country to learn more about the past evolution and current shifts in Japan?

The notes above are, by design, statements of the help that economists here might hope to secure from more active cooperation; and they are put in the form of questions in ignorance of whether or not conditions and resources in Taiwan would permit assistance on topics of the kind suggested. Because of such ignorance, it would make little sense for me to suggest here specific forms of cooperation, whether they be a continuous center, joint projects, exchange of scholarly personnel, and the like. These could be discussed usefully only after the preliminary raising and discussion of the questions indicates that there is a base for continuous and useful cooperation.

Whether such a base is desirable could be seen best if the members of the group of scholars from Taiwan were to indicate what they would expect to gain in the way of assistance from intellectual cooperation with scholars in this country and to respond quite openly to the suggestions of the type made above. For it is only if all members of a group are assisted by participation in a cooperative effort that there is a sound base for the latter.

CULTURAL DIPLOMACY AND PRIVATE CULTURAL COOPERATION

by WALTER H. C. LAVES, *Chairman*
DEPARTMENT OF GOVERNMENT, INDIANA UNIVERSITY

In the course of a conversation with the Chairman of our Conference, I suggested the importance of including among the agenda an item on the role of government in the development of cultural exchanges. The Chairman asked me to submit a brief paper which would raise for discussion some of the basic issues herein involved.

The background for the specific issues I shall later raise is the fact that during the twentieth century, and especially during the last twenty-five years, there has entered into the relations of nations a dimension which can best be described by the words "cultural diplomacy." The formal relations of nations today are therefore concerned not only with the more traditional elements of political-security affairs and economic affairs; they are also concerned with the advancement of education, science, scholarship, and the arts (here broadly called "culture").

As in the case of the two more traditional elements, the concern of government is with cultural advancement both as an end and as a means. Government, as part of its normal responsibility, is concerned in most countries with promotion of the general welfare, and in this the advancement of education, science, scholarship, and the arts is, of course, fundamental. Hence, the promotion of this development as a part of the conduct of foreign relations is quite normal, though it is true that many governments have been very slow to see their responsibility in this respect and may even now be blind to the importance of this aspect of foreign affairs. A major cause of governmental slowness is, in turn, the general unawareness of citizens concerning its importance. We should note also that a good many countries are concerned only with the importation of foreign cultural resources, while others see that promotion of education, science, scholarship and the arts anywhere contributes to the good of all. All of these comments relate to the *ends* of governmental concern.

Cultural diplomacy, however, also has its *means* aspect. Here I refer to the deliberate involvement by government of national cultural resources in the conduct of foreign affairs. These resources may be used in order to help friends, to win friends, or to influence people. The French have been long noted for astute cultural diplomacy in this sense. The British Council is a means for this purpose. The Germans, after World War I, sought to get back into the good graces of nations by governmentally-directed cultural relations programs, including the sending of speakers, professors, books, and by awarding study opportunities for foreigners in Germany. The Germans did this most effectively in Latin America during the 30's and this contributed perhaps as much as any factor to the organized United States cultural relations program that then came into shape after

World War II. I suppose that the Boxer Rebellion Scholarship Fund had *means* implications. Today the U.S. and U.S.S.R. are slowly sparring for positions in the realm of cultural exchanges, which certainly are more *means* than *ends* oriented. Elsewhere the United States government finances mammoth transnational cultural programs, including student and faculty exchanges, books, libraries, technical assistance, which clearly have both *means* and *ends* motivation.

Traditionally, I suppose one may say that cultural cooperation was a private undertaking: carried on by intellectuals, universities, missionary groups, foundations, and many voluntary organizations interested in education, medicine, religion, and various forms of technical assistance. Some countries were blessed by large bodies of immigrants who were a kind of cultural cooperation. The private programs of cultural cooperation were conceived in terms of special interests, special existing contacts and, except for foundations, were mostly based on fairly limited budgets. They did not generally seek to present abroad a total image of the country of origin, nor did they seek to provide anything like a total or even balanced response to the needs of the recipients. To a very large extent their efforts were one-way rather than reciprocal in content, method, and benefits.

The intrusion of government into this world of essentially private exchanges came about for several reasons: (1) A conscious governmental decision to reinforce diplomacy with cultural impact—sometimes a form of cultural imperialism. (2) The rapid growth of world interdependence, especially in respect to the preservation of peace, paralleled by rapid development of communications which made it a matter of public concern that a correct image should be held of individual countries by the people of others. (3) The critical and pressing character of developmental problems in newly independent countries, especially since the end of World War II. (4) The world's struggle of ideology in conflict with Communist and other forms of dictatorship. What I call the governmental "intrusion" did not come about at one moment nor at the same time for all countries.

Many informal individual efforts to promote cultural interchange "for its own sake" gradually became of minor importance compared with large-scale formalized governmental activities. However, larger scale private activities also developed through the large private foundations. These were focused on limited objectives, like medical research, as well as upon more broadly conceived public welfare activities. More recently, government efforts to mobilize for foreign relations reasons intellectual resources found in universities, especially in the Unted States, stimulated latent interests which now are dynamic forces in the private sector for the strengthening of transnational cultural relations.

The very extensive growth of interest by governments in the advancement of knowledge abroad (as seen from any nation's point of view) was perhaps best evidenced by the creation of UNESCO and the rapid growth of its influence and impact in many parts of the world. Here is a world center of cultural diplomacy maintained by government contributions from about four-score nations. It has programs designed to advance science, education, and culture anywhere in the world. Others are focused upon technical assistance, especially in education and science. Still others focus on problems of transnational communication, as, for example, the large orient-occident understanding program, the school textbook program, the Cultural and Scientific History of Mankind, fellowships, and foreign study programs.

There is much more that should be said if this were to be a complete discussion of cultural diplomacy at this point of the twentieth century, and I am very much tempted to go on. My purpose here, however, should be to do no more than suggest some background for a discussion which I hope may focus on the relationship of public (government) cultural activities to private ones. This I consider an important issue because of the reality and the necessity of cultural diplomacy as an element of foreign policy for the modern state. The following questions may help stimulate the discussion.

1. What should be the balance between public and private cultural activities as regards quantity of activity? As regards subject matter of concern? As regards quantity of exchanges (persons, books, art festivals, etc.)?

2. How should the public and private sectors be related as regards the making of cultural diplomacy *policies?* As regards development of national *programs* for overseas activities of this kind? As regards actual *operations* and *administration* of cultural activities?

3. What should be the relation of national cultural diplomacy to that of UNESCO and the United Nations? How adequate are UNESCO's efforts?

4. Can one describe the area of cultural diplomacy in which the public and private sectors will cooperate and also mark out exclusive ones for each?

5. Should information activities be consciously related to cultural activities? Technical assistance?

6. Are there cultural activities which become corroded by influence of government? Can this be avoided? Does it make any difference to recipient countries whether a given cultural activity of another nation has been stimulated or is possibly being directed by the government?

7. What is the proper relationship of cultural diplomacy and private efforts in the grand strategy of the free world and its concern for the strengthening of democratic institutions.

8. Should public cultural activities be organized on a unilateral, reciprocal, multilateral basis?

9. How important is it that any nation's cultural activities in relation to another country are planned and administered cooperatively on at least a bi-national basis?

10. In what respects should government be permitted to direct private cultural activities? As regards the countries in which they are to be carried on? Subject matter? Suitability in point of time?

11. Would there be developed for each country something approaching a master plan for educational, scientific, and cultural development to which

foreign, public and private, cultural activities are related? Is such a plan feasible for newly developing countries? How essential is "freedom of enterprise" in international and transnational cultural activities?

12. What are the proper limits of manipulation of cultural resources for public purposes?

13. How can one organizationally best relate governmental and private efforts seeking common objectives in a democracy and designed to further the total public interests?

I do not pretend that these are the only important questions, and I am sure that there are a great many others that might be asked. It does seem to me, however, that these are questions directly relevant to the central theme of this Conference, and I believe that a discussion of them might throw some light on an extremely important and highly complicated problem of our time.

BIOLOGICAL EDUCATION AND RESEARCH IN THE REPUBLIC OF CHINA

by Li Hsien-wen, *Director*
INSTITUTE OF BOTANY, ACADEMIA SINICA

Since V-J Day practically all the Japanese professors in biology as well as in the other sciences have been sent back to Japan. We had to take over the instruction and research in biology with a very limited number of biologists who had come over from the mainland by that time. After the loss of the mainland to the Reds in 1950, more biologists came. However, it has been fifteen years since V-J Day. Many young biologists who were either trained locally or received their advanced training abroad, mostly in America, are coming along to share the responsibilities of teaching and research with the older generation.

Education

In Table I some statistics relevant to the teaching of biology at various institutions are given.

Of twenty-one colleges and universities, four do offer the Bachelor of Science degree to students who major in biological science. Only one university offers the Master of Science degree to graduate students majoring in botany. For undergraduate students, four years are required; whereas, it takes from two to three years for an M.S. degree.

TABLE 1.
STATISTICS OF EDUCATION IN BIOLOGY IN DIFFERENT INSTITUTIONS IN CHINA IN 1960

Institution	*Department*	*Undergraduates*	*Graduates*	*Professors*	*Instructors*	*Assistants*
Nat'l. Taiwan University	Botany	47	6	7	2	10
	Zoology	79	to be founded 1961	4	2	10
	Fishery Biology Sec.	32		4	2	10
Prov. Normal University	Biological Science	145		9		7
Tunghai University	Biology	73		4		3
Prov. Agriculture College	Botany	72		3		3
TOTAL		448	6	27	4	33

It is understood, of course, that courses in biology are offered to students in other departments and colleges, such as College of Medicine, College of Agriculture, College of Forestry, etc. These courses are offered by the staff members of the departments in biology either as common courses or as special ones. Of course some courses pertaining to biology of a special field are being offered by professors of the college concerned. In institutions where there is no such a department in biology, biological courses are offered by professors in biology who are engaged for that purpose.

Of roughly thirty thousand students in the 21 universities and colleges in 1960, only less than five hundred are taking majors in biology. This is a meager 1.5 per cent.

There are only six graduate students in botany in 1960. It shows vividly that students nowadays in China are more practical-minded. A majority of the students are going to take up medicine, agriculture, or other studies of practical application rather than theoretical sciences in biology.

Whereabouts of the students

There are altogether 30 students who obtained their B.S. degrees in the Department of Botany in National Taiwan University . Most of these remain in the University as assistants for a couple of years and then go to the States for advanced work and never come back.

Taking another institution for example, the graduates of the Biological Science Department of Provincial Normal University supposedly take up teaching as their life career. Of all these, 75 per cent remain to be teachers of biology in the high schools or technical schools; 13 per cent become teaching assistants or research assistants in universities or colleges; 10 per cent take advanced studies abroad; and 2 per cent others. It seems that going abroad for advanced studies would tempt and attract more students than teaching and research at home. This is also true with students in other branches of natural sciences.

Teaching staff

As can be seen from Table 1, there are altogether 64 teachers for 454 undergraduates and graduates in the departments of biological science in the four institutions. Roughly, there is one teacher for every seven students. As can be seen further, there seems not to have been much difficulty in getting enough teachers, as in the case of National Taiwan University. However, the newly founded departments in biological sciences in other institutions would have a tremendous amount of trouble in securing enough teachers, such as Tunghai University and Provincial Taichung Agriculture College.

What is taught

The courses offered in biological science in National Taiwan University would serve as an example.

BOTANY:

For undergraduates—General Botany, Plant Taxonomy, Plant Morphology, Plant Physiology, Plant Anatomy, Microtechnique, Micrology, Cytology, Genetics, Economic Botany, Ecology, Zoology, Invertebrate, Comparative Anatomy, General Chemistry, Organic Chemistry, General Physics, and Thesis.

For graduates—Thesis, German, Plant Nutrition, Plant Geography, Gramineae, Pteridophytes, Algology, Bryology, Cytogenetics, Physiological Genetics, Evolution, Anatomy of Vascular Plants.

ZOOLOGY:

For undergraduates—General Zoology, Comparative Anatomy, Invertebrate, Embryology, Histology, Microtechnique, Physiology, Ecology, Animal Taxonomy, Cytology, Genetics, and Thesis.

Quality of teachers

Again, the staff members in the departments of botany and zoology would serve as an illustration.

TABLE 2.
DEGREES OBTAINED BY STAFF MEMBERS IN DEPARTMENTS OF BOTANY AND ZOOLOGY AT NATIONAL TAIWAN UNIVERSITY

	Ph.D	*M.S.*	*B.S.*	*Total*
Professor	7	3	1	11
Instructor	0	2	2	4
Assistant	0	4	16	20
TOTAL	7	9	19	35

The majority of the teachers received advanced degrees in the States.

Library Facilities and Equipment

It is true that in older institutions, such as National Taiwan University, both library and equipment facilities are fairly adequate not only for teaching but also for research. However, the newly founded institutions are far from being adequate. It is improving, nevertheless, with the financial help from the National Long-Range Science Development Council. Mention should be made here that the staff members are very much underpaid and that more often than not there is a shortage in running expenses for teaching and research in different departments.

RESEARCH

Institutions carrying research

The institutions engaged in research in biological sciences are listed as follows: Institute of Botany, Academia Sinica; Institute of Zoology, Academia Sinica; Department of Botany, Taiwan University; Department of Zoology, Taiwan University; Fishery Biology Section, Taiwan University; Department of Biological Science, Normal University; Department of Biology, Tunghai University; Department of Botany, Taichung Agriculture College; Provincial Taiwan Museum; Department of Biology, National Defense Medical College; Departments of Physiology and Pathology in College of Medicine, Taiwan University.

Publications

The results of research are published in scientific journals here and abroad. A few publications dealing with biological research are:

Botanical Bulletin, Academia Sinica, new series, bi-annually. Published by Institute of Botany, Academia Sinica. Vol. 1, No. 1, will be issued presently.

Taiwanica, non-periodical. Founded in 1950. Six numbers were published by Department of Botany, Taiwan University.

Reports of the Institute of Fishery Biology, non-periodical. Founded in 1956, published by Fishery Biology Institute, Department of Zoology, Taiwan University.

Bulletin of Science Association of Normal University, in Chinese, yearly. Founded in 1951, published by Department of Biological Science, Normal University.

Quarterly Journal of Taiwan Museum. Founded in 1947, published by Provincial Taiwan Museum.

Popular in Nature

Bulletin of the Chinese Association for the Advancement of Science, bi-monthly. Founded in 1952, published by the Chinese Association for the Advancement of Science.

Science Education, monthly. Founded in 1944, published by the Chinese Association for the Advancement of Natural Science.

Quality of Research

So far, the quality of the research work done in the Republic of China is only fair. There is plenty of room for advancement, especially in research work along the lines of recent advancements. Taking genetics as an example, the research work done here is in the line of old classical Mendelianism, using higher plants for experimental purposes. Biochemical genetics is rarely taught in any of the institutions. Consequently, no research worker is doing any work along that line, which is developed only recently.

With moral and financial help from the National Long-Range Science Development Council, the tempo and quality of research are greatly enhanced and accelerated. Since the start of this Council three years back, there are ample signs of progress shown in our research work.

FUTURE

Our most serious handicap or difficulty in biological science development is the shortage of trained personnel, both in teaching and research. We want our young biologists to be trained abroad, but we also want them to come back to help train our future generation, without which we are bound for failure or incapability of catching up with the recent developments elsewhere. We want our teaching staff, as well as our research workers, to have a chance to brush up their knowledge periodically. Fellowships set up toward this end would certainly help these people. If it is possible, we would hope sincerely that foreign biologists would have a chance to come to stay for a short time or a longer duration. We would expect them to help train our young biologists or show our biologists new knowledge and techniques.

It is hoped further that the aforementioned Science Development Council organized here would be made into a permanent organization so that development in biological science as well as in other sciences could depend on it for financial and moral help and assistance.

In order to induce more young people to study biology in universities, more competent teachers must be provided in the high schools. It is urgent as well as necessary therefore that programs of intensive training for future teachers in the Normal University must be carried out. This is a chain reaction.

It should be mentioned here that more opportunities, especially in research work in biology, whether academic or applied in nature, must be provided so that young biologists shall have some hope and aspiration for staying at home. Otherwise, they shall make "going-abroad" their final goal in life. This is certainly a great loss to our country.

PROPOSALS FOR CULTURAL COOPERATION IN THE FIELD OF NATURAL SCIENCES

by **Li Shih-chang**
DEPARTMENT OF CHEMISTRY, TAIWAN PROVINCIAL CHENG KUNG UNIVERSITY

1. Increasing the numbers of exchange scholars and exchange students between the Republic of China and the United States. According to the booklet of visiting scholars in the United States in the academic year 1959-60, there are more than 683 visiting scholars in the States. Just to give some examples from various countries: United Kingdom, 145 visiting scholars; Japan, 128 visiting scholars; Germany, 69 visiting scholars; China, 12 visiting scholars only.

2. Extension of the exchange period from one academic year to one calendar year; that is to say, from nine months to twelve months. When the visiting scholars work in the universities about one academic year, they finish their work in the laboratory; they should then have enough time (about two months) to write and type the results of their work.

3. Exchange of teaching and research faculty in natural sciences. For example, the writer discovered a new micromethod for the determination of the boiling point of any pure or mixture of aromatic hydrocarbons in a few microliters (1 microliter = 1/1,000 ml) because the Department of Chemical Engineering, University of Washington, has the new instrument (gas chromatography).

THE TEACHING AND LEARNING OF ENGLISH IN TAIWAN

by LIANG SHIH-CHIU, *Chairman*
DEPARTMENT OF ENGLISH LITERATURE, TAIWAN PROVINCIAL NORMAL UNIVERSITY

The English language is widely used in Taiwan, perhaps more widely used than anywhere else in East Asia. Here the teaching and learning of English starts from the junior middle school level, where the average age of the pupils is around fourteen or fifteen years. English is a required subject throughout the three years in the junior middle school and another three years in the senior middle school. Those enrolled in colleges or universities, irrespective of their major subject, are required to have one year of English, sometimes followed up by another course of English in the second year. That is to say, an ordinary college student, at the time of his graduation, can boast a training of English for no less than some seven or eight years; but his knowledge of the language is far from being adequate. Perhaps he can read tolerably well, but his oral production is generally poor, not to mention his ability to write. Certainly there is ample room for improvement.

The aims and purposes of the teaching and learning of English have been set by the Ministry of Education and they sound almost ideal. It is generally understood that the students are taught English so that they can use it as a means to pry into what is best in Western civilization. The development of their reading power is therefore the ultimate goal of English teaching. Fluency in speaking the language seems to be of secondary importance. The question is how to realize this ideal as quickly and as effectively as possible, with the least amount of time and energy wasted in the course of teaching and learning. To build up an efficient reading power in a foreign language is no easy job as it involves many problems that are hard to solve.

To begin with, *the time spent for the learning of English in the schools is utterly inadequate.* The junior middle schools are allowed only four periods—50 minutes to a period—a week for learning English. Counting on the basis of eight working hours a day, the junior middle school students are allowed to have the equivalent of 60 hours (or 7½ days) a semester, and 360 hours (or 45 days) for learning English in three years of study. The senior middle schools are allowed five periods a week, which amount to 70 hours (or about nine working days) a semester, and 420 hours (or 52 working days) for learning English in their three senior years. And the situation in colleges and universities is not much better, for only a paltry four or five hours a week is allotted to instruction of freshman English, and still less time for sophomore English. With so little time given, together with other factors involved, one should not wonder too much as to why students cannot sufficiently master the language as they should.

The American Armed Services Training Program (A.S.T.P.), popularly known as "the army method" in the teaching of foreign languages, has been much talked about here, and we all admire its singular success. But its effectiveness is largely due to its intensive nature. Nothing is more conducive to the learning process of a foreign language than the creation of an environment of that language. Constant drill and incessant practice can best enable the learner to form the correct speech habit. This is how a child learns to talk, and the natural way is always the best way. But it is a *sine qua non* that a sufficient amount of time must be set aside for that particular training. A passage from Mencius contains a case in point:

"'... Suppose that there is a great officer of Ts'oo here, who wishes his son to learn the speech of Ts'e. Will he in that case employ a man of Ts'e as his tutor, or a man of Ts'oo?' 'He will employ a man of Ts'e to teach him,' said Puh-sheng. Mencius went on, 'If but one man of Ts'e be teaching him, and there be a multitude of men of Ts'oo continually shouting out about him, although his father beat him every day, wishing him to learn the speech of Ts'e, it will be impossible for him to do so. But in the same way, if he were to be taken and placed for several years in Chuang or Yoh, though his father should beat him, wishing him to speak the language of Ts'oo, it would be impossible for him to do so.'"

A few hours of English per week, counteracted by considerably more hours of studies conducted in Chinese, naturally cannot make the students learn much English in school. It is easier for the English-speaking students to learn French or German or Spanish, for those languages are more or less akin to each other, whereas the Chinese language is so basically different from English, both in sound and in structure. Any plan of introducing intensive training of English in schools here is hardly feasible, for it necessitates a sufficient number of hours to be devoted to the language, and the students are already overburdened with too many courses of study besides English. Suggestions have been made to suspend all English teaching in the junior middle schools and to have it taught in the senior middle schools in a more concentrated way, but it is too drastic a change to be adopted forthwith.

Equally important is *the problem of the size of the class.* The classes are generally too big for effective language teaching and learning. Classes run from 45 to 65. A few schools that are able to limit their classes to just 50 feel superior to the other schools because they have "small classes." Classrooms are not spacious enough, generally speaking, and so, with so many in a class, they are pretty over-crowded. There is often not enough blackboard space and little room for the teacher to get around in class. It is all right for ordinary lecture or reading courses to have a fairly big attendance; but for language training, such big classes are extremely unwieldy. Individual attention or practice is well nigh impossible for there is no time for it. Correction of papers has always been a headache to teachers, but when the papers pile up one foot high every week, their correction is a formidable task, and no teacher likes to be perennially swamped with work. Consequently, for lack of drill and individual attention in the class, many students resort to instructions given by private tutors or preparatory schools to make up their loss in school.

Of course the best way out is to slash the number of students in the class or split the class into smaller sections. But this is easier said than done. The number of middle schools on the island has been rapidly on the increase. Additional classes will inevitably further strain the budget.

The problem of textbooks is also a knotty one. The writing of English textbooks is open to all. Anyone may write a series of English textbooks, provided he is ready to conform, theoretically at least, to the standards set by the Ministry. Among others, the latest requirement of the Ministry for the size of the vocabulary for the junior middle schools is 1,500, and for the senior middle schools is 2,500. It is easy not to include in textbooks more than the limited number of words, but it is not so easy to provide sufficient repetition of the words in the lessons or adequate drills and exercises so that the students can really understand and use those words. Another requirement is that conventional grammar should not be systematically taught in schools. But the demand for conventional grammar on the part of the teachers and students is such that no textbook writer dare omit it altogether. Grammatical rules are often offered piecemeal after each lesson. Sometimes conventional grammar is taught in a separate hour. Thus much time is lost in learning about English grammar instead of learning to use English grammar.

An ideal set of English textbooks for Chinese students should be based on a careful analysis of the two languages involved. So far such textbooks have not been available in Taiwan. To my knowledge, two such attempts have been made in the U.S., one by Dr. Charles C. Fries and Dr. Shen Yao (*An Intensive Course in English for Chinese Students,* English Language Institute, University of Michigan, 1946), and another by Miss Isabella Yen (*English for Speakers of Mandarin Chinese,* American Council of Learned Societies, Washington, D.C., 1955). Both are results of sound scholarship, but they have not yet received much attention in Taiwan. Only when they are actually used in our schools here can we be in a position to comment on the effectiveness of such textbooks. Textbook writers in Taiwan should be encouraged in the meantime to do some research work on the fundamental differences of the two languages before they start to write.

The difference between American English and British English has given rise to much disquietude among teachers and students. Although American English is the kind of English actually used all over the island, the bulk of English teachers are often reluctant to admit that they are teaching anything short of the standard King's English. The question is especially marked when we come to the use of phonetic symbols. IPA is universally used by teachers of English; but in theory they invariably follow the pronunciation set down in Daniel Jones' *Dictionary of English Pronunciation,* for the simple reason that Jones' dictionary is the only one existent from which they first learned their pronunciation. Jones' dictionary represents the southern British English pronunciation, so there is discrepancy between what is learned and taught on the one hand and what is actually spoken on the other. Even when the alphabets being taught the students at the outset, they are bewildered to find the letter *r* pronounced as *ar* but transcribed into phonetic symbols as *a:*." The typical American *r* sound is left out. What more bewildering cases are to beset the students can well be imagined. Some have tried to adopt Professors Kenyon and Knott's *Pronouncing Dictionary of American English* as guide to pronunciation, but it will take time to be universally accepted. I am not finding fault with any particular pronunciation, whether American or British; but one must be consistent in using the phonetic transcript and in actually pronouncing a word. After all, phonetic symbols are only an aid to students, a convenient means to describe the pronunciation of irregularly spelt words and to help them outside the class. It doesn't matter which system is to be used, so long as the teacher can teach the students correct English pronunciation.

In passing, a few words may be said about *audio-visual aids*. The importance of these aids must not be over-emphasized, but they are indispensable to any effective teaching of language. Most schools in Taiwan have record-players and even tape-recorders; but the students are busy, and so they do not have any spare time to benefit from these aids. Film strips are too expensive and no school can afford such a luxury. Only very occasionally can the students in some schools be given such a treat. Besides, in order to make full use of the machines, the schools need technicians or people who have had training to be in charge of and to run them. We have an audio-visual aids training center for this purpose incorporated in the Taiwan Normal University; but it is run on such a small scale that it can hardly meet the general demand. However, the English majors of the Normal University who are prospective English teachers are required to take courses at the training center before they graduate.

The most important problem is the training of teachers and the improving of teaching methods. The choice of a proper teaching method and its effective application hinges upon the qualification of the teacher. For the teacher uses, and is only able to use, the kind of teaching method by which he himself was taught. The majority of teachers of English in Taiwan are not English majors, and those who are generally learned their English through the conventional way, that is, the so-called translation method. So they in turn teach their students in the same way. The classes are conducted in Chinese, and the students are deprived of much of the aural practice. Emphasis is laid on memorization of vocabulary rather than on a thorough understanding of usages and structure. One has nothing to say against this method of teaching, old-fashioned as it is, if satisfactory results can be ensured. But the fact is there are now more modern ways of teaching a foreign language along linguistic lines and they can produce better results. So there is no reason why we shouldn't look into them.

The Taiwan Normal University, the only institution of its kind on the island, is entrusted with the job of providing the middle school with teachers. Its English Department has been turning out a small batch of graduates each year to teach English in the middle schools. The people in charge of the Department have not been unaware of the necessity of doing something toward modernizing the teaching of English. By way of experiment, *The English Language Training Center* was established in 1955, in cooperation with The Asia Foundation. The purpose of this establishment is to select a small group of freshman students from the English Department and train them with the oral approach to language teaching and learning so that they may become teachers who can teach correct English (correct pronunciation and structure) in English. The oral approach to language teaching and learning calls for native speakers as informants, and at the Center they are provided by The Asia Foundation. This is a special feature that makes this project different from other English language training places on the island. For a time five American informants participated in the project. As The Asia Foundation is gradually phasing out from the project, the native speakers must be locally recruited. At the Center more emphasis is laid on aural and oral training in the first year. Because of the comparison between the two languages involved, theories in both structure and pronunciation are taught by Chinese teachers in English with the occasional use of Chinese whenever necessary. Drills on pronunciation and structural patterns are done by American teachers with groups of from eight to ten students. These drill hours give the students many opportunities not only to hear English spoken by native speakers but also to imitate and repeat after correct models. Pronunciation exercises are recorded on tapes and discs to give students extra practice in laboratory hours and for individual corrections. Students are required to read novels, mostly simplified or adapted versions, outside of class and have discussions with the teacher in class. Lectures by guest speakers are constantly arranged for the students and a movie is given them once a week.

The first year training at the Center is more or less intensive. Although the students still need a great deal of intensive fundamental aural and oral training after that, they have other requirements to fulfill and therefore do not have time for the kind of training that they had when they were in their freshman year. Except for a course on remedial pronunciation, what the students have from the second year on are all content courses. But all the content courses are in English, and the students have to take lecture notes, write term papers, and have discussions in English in class. The students are thus in constant contact with the English language, both written and spoken, especially in class.

One drawback that the set-up at the Center has is that it does not provide students with opportunities to have contact with native speakers outside of class. Because of this, even after a year of training, sophomores still do not feel quite free in speaking English all the time outside of class. They have very good aural comprehension ability, but they need more time and practice to build up their ability in oral production. It is hoped that as time goes on, the students will not be too self-conscious and will feel free to use English at all times. One thing that makes the classes at the Center different from most other classes is that it is not just a teacher's show; the students participate in class.

I have dwelt at length on the English Training Center at the Normal

University because it is the first attempt that has ever been made in China to put a new face on the whole problem of English teaching. Now that the project has reached its fifth year, and some twenty-odd graduates are holding teaching jobs at various middle schools, we are in a position to conclude that the efforts have not been made in vain. It is hoped that from this Training Center the newer methods for English teaching and learning will germinate and be disseminated throughout the island.

Like any other effort at innovation, this project has met with adverse criticisms, especially from those who profess to be old hands in this particular field but are adamant in assimilating anything new. With no intention of entering into any controversy, I wish to point out that the ultimate aim of the oral method is to train well-rounded English teachers. The intensive oral and aural training at the beginning is to be followed up by content courses. It is not the aim of this method, as it is often alleged, to train the students simply to carry on every day conversation with English-speaking people. The theory behind this method is that an intensive oral and aural training at the initiative stage will enable the students to acquire the correct speech habit, and having completely mastered the rudiments of the language, the students can learn to read and write all the more rapidly and smoothly. The oral approach, like any other method of teaching, is a means and not an end.

In conclusion, the following suggestions may be helpful:

1. *There is a great need for new textbooks, based on the comparison between Chinese and English.* A group of experts should come together and jointly do some research work in this connection. They should include experienced teachers of both middle school and university level who are open-minded enough to take in new ideas. This work will perhaps take two or three years before it can be finished. These textbooks, when they come out, should not be officially proclaimed as the "standard textbooks," but they should be freely used by teachers who want to use them. The planning and organizing work for this purpose may well be devolved on the Taiwan Normal University where there is an English Research Institute as well as an affiliated middle school which will be useful in testing the teaching material from time to time.

2. *It is desirable to set up seminars for the teachers in service, in which courses in linguistic science can be offered in the summer to give the teachers some knowledge and training in the newer trends of thought and technique.* In fact this has been done several times in the past, but it should be repeated oftener and should be entered into with greater zest.

3. *If possible a few teachers in service should be sent to the U.S. every year for further study.* They could get acquainted with what is going on there in connection with the teaching and learning of foreign languages.

4. *The work at the English Training Center at the Normal University should be greatly augmented.* The whole student body should benefit from the newer method of teaching and learning English instead of limiting it to a chosen group. Of course this calls for an expansion in personnel and increase of funds.

MATHEMATICS AND PHYSICS EDUCATION IN TAIWAN

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This short note gives a brief description of mathematics and physics education and research in Taiwan of the Republic of China. Items for Sino-American cooperation in the fields of mathematics and physics are suggested. The creation of a computing center within the Institute of Mathematics, Academia Sinica, is emphasized.

Undergraduate courses in mathematics and physics

In Taiwan, the following universities or colleges have departments of mathematics and physics which offer undergraduate courses in mathematics or physics:

1. Departments of Mathematics:
    a. National Taiwan University
    b. Provincial Cheng Kung University
    c. Provincial Normal University
    d. Tankiang College of Science and Art
2. Departments of Physics:
    a. National Taiwan University
    b. Provincial Cheng Kung University
    c. Tunghai University
    d. Chungyuan College of Science and Technology
    e. Provincial Normal University (a joint department with chemistry)

The curricula in these departments, or in the departments of science in general, are almost entirely similar to those current in American universities. Each year these departments turn out about two hundred graduates with the bachelor's degree in mathematics or physics. English texts generally are used in the classes. The reading ability of the students is generally good, but the speaking ability is comparatively poor. Laboratory space per science student is to a varied degree inadequate, and so also is the over-all laboratory equipment. The teaching staffs are usually so much overburdened with classroom lectures that little time is left for research or advanced study. This is so because of the dual fact that the pay is low and qualified personnel is scarce. As an immediate consequence, the research climate is generally so low that there is little contact with recent developments. However, the situation was to some degree improved or alleviated by sending visiting scholars to the States with the support of the ICA or the Fulbright Act.

Nevertheless, in spite of all the shortcomings, the university professors are, as a rule, faithful in teaching, and they work hard so that the undergraduates turned out are generally good in basic scientific learning up to a standard accepted in the States. This may also be accounted for by the fact that the Chinese students are usually diligent in their studies, especially the science students, who are, as a whole, the cream of the batch of middle school graduates who have successfully passed the university entrance examinations. The competition in such examinations, it may be mentoned, is extremely keen in Taiwan.

So far there are no postgraduate courses offered to physics and mathematics students in the afore-mentioned universities and colleges. A number of the undergraduates go abroad for further study or research, particularly to the States; some pursue postgraduate studies in the two graduate schools in Taiwan, namely, the Tsinghua Graduate School of Nuclear Physics and the Chiaotung Graduate School of Electronics, and the rest take up a profession—teaching or otherwise. It should be mentioned that there are no undergraduate courses offered by the two above-mentioned graduate schools.

Tsinghua and Chiaotung Graduate Schools

Each of the two graduate schools offers a two-year course, one in nuclear physics and the other in electronics. They enroll altogether about eighty graduate students with bachelor's degrees in physics, chemistry, electrical engineering, mechanical engineering, etc. A master's degree is offered to each successful candidate after two years of advanced study and research. Formerly, Tsinghua and Chiaotung were the two best-known national universities in Mainland China, one in Peiping and one in Shanghai, as far as science and engineering education are concerned. They were re-established here as graduate schools a few years ago. The progress has been speedy and satisfactory. The first batch of graduate students was turned out two years ago in the Tsinghua Graduate School. The first group of graduate students will be turned out this coming fall in the Chiaotung Graduate School. In Tsinghua, a reactor is being built; while in Chiaotung, electronics laboratories are in progress. The writer merely mentions, in passing, the two graduate schools, with the belief that they will be mentioned in other papers.

The Institute of Mathematics, Academia Sinica

This Institute is one of the few institutes of the Academia Sinica which moved out intact from the Mainland to Taiwan in 1948. When it first came to Taiwan, this Institute was temporarily housed in Taiwan University. It moved to Nankang in 1955, along with the Academia Sinica, and was again temporarily housed in the building of another institute of the Academia Sinica. Recently, under the financial support of ICA, through the National Science Council, a separate building is being erected and is expected to be completed in a few months. The new building will provide adequate floor space for research activities of the Institute. Floor space is also provided for housing an electronic computer in the future. An air conditioner, which is necessary for an electronic computer, can easily be installed in this building. The personnel in this Institute is as follows: Fellows (full or part-time), 11; associate fellows, 1; assistant fellows, 3; assistants, 11. Nearly half of these are now in the States, partly engaged in teaching and partly in further study and research. The Institute takes in several Bachelors of Mathematics each year as research assistants. Those now in Nankang are engaged in researches in various fields of pure and applied mathematics.

About one dozen research papers have been produced this year; most of them are published, or will be published, in the scientific journals abroad, notably in the States. A research journal, quarterly or semi-annually, to publish original papers on pure and applied mathematics is now in planning. It may also include papers on theoretical physics. The contributors will not be restricted to those residing in Taiwan.

Science cooperation in the fields of mathematics and physics

The following items of Sino-American cooperation in the fields of mathematics and physics are suggested:

1. Exchange of professors.
2. Exchange of visiting scholars.
3. Offer more scholarships, especially to those Chinese students who undertake basic scientific researches in the States.
4. Improve the climate of science education and research in Taiwan by providing more equipment and laboratory space.
5. Exchange scientific literature and provide adequate library facilities. This is urgently needed for scientific researches in China.
6. Contract in Taiwan such off-shore scientific projects in the fields of mathematics and physics (including applied mechanics). There are a number of scientists in Taiwan of such a calibre that direct contribution to the advancement of science is possible if properly supported.
7. Start a project in Taiwan to abstract scientific literature coming out from Mainland China (from Chinese to English).
8. Create a computing center in Taiwan. This will be further stated in the following paragraph.

The need of an electronic computer

As mentioned in the foregoing, the new building of the Institute of Mathematics, Academia Sinica, has made provision for housing an electronic computer. The importance of an electronic computer to scientific research goes without saying. During the writer's first visit to the States shortly after the war, he noticed that at that time only a few universities had electronic computers. For instance, an analog computer was just being installed in the California Institute of Technology. But during his second visit two years ago, he found almost every university visited was equipped with the following three machines: a digital computer, an analog computer, and a differential analyzer. It is suggested that a computing center be created within the Institute of Mathematics, Academia Sinica, to render services on numerical computations and data processing in the whole Taiwan area. Perhaps an IBM 650 would be enough for the time being. This type of machine is now gradually being replaced in the States by the fast and large IBM 704. However, even the replaced IBM 650, with the necessary accessories, is quite expensive, and foundation support is needed. If this could be installed, the scientific research climate in Taiwan would be greatly improved and many research projects which were formerly hindered by the lack of such a machine could be started or speeded up.

TEACHING AMERICAN HISTORY TO CHINESE STUDENTS AND THE POSSIBILITIES OF SINO-AMERICAN COOPERATION

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INTRODUCTION

It is a singular fact that, with Sino-American relations as important as they are today, there has been little propensity among the Chinese people, even among students of the college level, to study American history. Our people do like to know about America and the American people, but not many realize that really to know America a good grounding in American history is needed. Even among those who realize this, few are willing to take the pains to go deeply into the subject, perhaps partly because they suspect that the resulting knowledge may not be proportionate to the effort spent. Why should there be such a suspicion? Our people are willing enough to take pains to learn European history, although it is usually more difficult to master than American history. My teaching experience has been that a European history class almost invariably has a larger enrollment than an American history class. A brilliantly written textbook on the history of the Western World, written by an American-trained student, in wide use a generation ago, contained not a page about America after the Declaration of Independence. Such a phenomenon comes from the notion, quite generally held even now, that since the history of the United States is less than two centuries old and that since American civilization is only an outgrowth of European, there is little in American history that we cannot learn in European history. The America worth knowing is the America of the present, not the America of the past. It goes without saying that this notion of the relative importance of European and American history needs now to be revised, considering the rising power of the United States and her present position as the leader of the Free World. This revision, not in minimizing the influence of Europe, but in giving more emphasis to the role of the United States, is already begun, if my observation of the recent trends in publication is correct. Our problem now is: with the increasing realization of the importance of American history, how can we make the study of American history by Chinese students less difficult and more fruitful so as to eradicate the suspicion that the result will not be proportionate to the effort? And in solving that problem, how much can be achieved by Sino-American cooperation?

How to make this study less difficult and more fruitful

In answering this question, the first thing needed, it seems to me, is a good college textbook (we study American history only at the college level). There are plenty of good college texts written by American historians for American students. I have used several in my American history classes and have high regard for their quality, but I still wish for a text written with the needs of the Chinese students specifically in mind. For one thing, our students do not have adequate knowledge of American background. They often do not realize at first that the continental dimensions of the United States have different sections and regions, with complex and conflicting interests, as much as China's east and west, north and south, coast and inland, plains and mountains. The names of the 48 states, now increased to 50, and the thousands of geographical names are apt to confuse the students without first-hand knowledge of the country, as much as our monosyllabic names of provinces, districts, and cities are baffling to the American students. More important, the United States has historical and social backgrounds very different from China's. She has marched in a very short span of historic time from wilderness pioneering, through rural simplicity, to stupendous industrial triumph. The rapidity of change and the multiplicity of problems that have accompanied these changes, such as the problems of immigration, of the disposal of public free land, of currency and banking, of tariff policy and of labor legislation, are not easily grasped by the Chinese students. Thus a textbook for Chinese students would require different orientation and emphasis, and should occasionally point out, by parallels and contrasts, relationships to their own experiences. Events of domestic interest, such as party battles and local issues, should be given less space, while matters with interest transcending national boundaries, such as America's international relations, her influence on the development of democracy the world over, and her contributions to world civilization, should receive more emphasis. Such textbooks would lighten the task of the beginner in learning American history and would make him feel that what he learned is meaningful.

Another great difficulty of the Chinese students in studying American history is their inadequacy in the use of the English language. Textbooks, useful as they are as introductory manuals, should not be the only books read in a course. A real student must do extensive outside reading and then go to the primary sources. Plenty of good books and articles are published in America about America. For those who have the language facility, the problem is simply the choice of the best. But among Chinese, the ability to read English with ease is not possessed by many, even among college students. To read a book of three or four hundred pages may require months of effort, and much of the effect will be lost. Another handicap, trivial as it may seem, but real, is the high price of American books in terms of our local currency. A book like Max Lerner's *America as a Civilization*, a very helpful book for studying America, is priced at US$10.00—a reasonable price considering its bulk, but in terms of Taiwan money, it costs about a third of a professor's monthly salary. Books on America, written in Chinese and published in China, will offer a solution to this problem.

Several good books written in Chinese on America have appeared in recent years. A notable example is a work of approximately five hundred pages called *A General Essay on America*, written by Prof. Chen Tien-fong, who was at one time visiting professor at the University of Washington and the author of a history of Sino-Soviet relations. It was published in December, 1959, and is now already in its second edition. Dr. Hu Shih, in a review of the book, said that it is the best book in explaining America and in understanding America written by a Chinese scholar in the last century and a half. There are other general surveys of present-day America by writers who had recently visited the United States. Such general surveys may supplement, but cannot supplant, serious historical literature for the study of history. There are translations of American history books such as Nevins and Commager's *The Pocket History of the United States;* Escher's *A Brief History of the United States;* Carman and Syrett's *A History of the American People.* Nevins and Commager's small volume seems to enjoy special popularity. There were two translations published before the Communist occupation of the mainland. As they are unobtainable here, the USIS had another translation published in 1958 (a second printing in 1959). It is a good translation and enjoys a deserved popularity. But, with due respect to the two eminent historians who wrote the original, I must point out that this book was written intentionally for the general reader, not for the student, and, of course, without the Chinese students in mind.

Of greater scholarly value is Edward N. Saveth's collection of essays, entitled *Understanding the American Past* (1954). It has been translated, but the translation does not seem to have attracted many readers. Heretofore we have felt keenly the lack of a scholarly work on the history of Sino-American relations. Now I am happy to report that Prof. Li Ding-yi, after two years' residence as a visiting scholar at Harvard, and now back in the History Department of National Taiwan University, has just published the first of a projected four-volume work on that subject. It covers the early period, 1784-1860, in 344 pages. It has made use of extensive Chinese sources and it will surely be read with interest by American and Chinese scholars alike. I must compliment Professor Li for accomplishing a work so eminently worthwhile. We are not so fortunate in other fields. We still have to wait for good histories of American economic development, educational progress, cultural evolution, and literary achievement to be translated, adapted, or written in Chinese.

History in specialized fields is difficult to produce, and with our present level of knowledge, may not find enough readers to be rewarding. But there is one field that is easier to exploit and may prove very effective. I mean the field of biographical studies. Biography is always easier reading than solid history, and the human appeal will attract readers. It can serve as an appetizer for specialized studies. I can mention several books in Chinese in this field, but considering its possibilities, very much more effort should be put in here. Of the Biographical Series listed in *Harvard Guide to American History* (pp.188-9), I am afraid none is well known (or should I simply say "known") in China. There are several great personalities whose towering fame prompted the writing or translating of their biographies. Of the early Americans, Benjamin Franklin is well known through his autobiography, of which we have good translations. But Becker's short article in the *Dictionary of American Biography,* and the prize-winning study by Carl Van Doren, are virtually unknown. Jefferson has several biographies in translation, mostly in brief volumes and not very distinguished. The outstanding study by Gilbert Chinard does appear in translation, but the translation is lamentably inadequate. No one has as yet attempted to introduce the most valued study of Dumas Malone to the reading public. And, curiously, there is not a single scholarly study of George Washington available in Chinese. Of the later period, Abraham Lincoln, as might be expected, is the commanding figure known to the Chinese people, and there are many books about him. But no one has made Carl Sandburg's classic volumes or Prof. James Randall's *Lincoln the President* available to Chinese readers. Of the recent period, Woodrow Wilson and Franklin D. Roosevelt in the political field; Andrew Carnegie, Rockefeller, and Henry Ford in the industrial field; and J. P. Morgan in the financial field, are well-known figures, but there are no scholarly studies of their lives in Chinese. The books of R. S. Baker, Arthur Link, Frank Freidel, Allan Nevins, F. L. Allen are quite unknown. There are no serious biographical studies of eminent college presidents, of scientists, of philosophers (except Dewey), and of many of the great literary figures. Of the 350 books listed in the *American Panorama* (edited by Eric Larrabee, New York University Press, 1957) which "portray the U.S. in its many aspects," practically none is available in Chinese. This dismal cataloguing of good books not available to the Chinese students points to the chief factor in the problem, and it also points to the solution of the problem—a planned and concerted effort to produce worthwhile books useful for the study of American history and usable by Chinese students.

But more fundamental than the supply of books is the supply of men and women to produce the books and to teach the books. How to make young scholars interested in the subject of American history, and how to make them willing to dedicate their life work to this field, is a more difficult problem. As I have pointed out, American history is taught in China only at the college level, and our graduate students, if they go into high school teaching, will find their former study of European history useful in teaching history of the Western World (or of Western Civilization), while what they learned in American history class may become a luxury soon forgotten. We should, therefore, consider how to provide opportunities for them to go deeper into the subject if they wish to continue their studies in American history, and also we should consider how to provide opportunities for them to work if they choose to specialize in this field. There is also the mundane question to consider: will the students specializing in American history be able to have work that will give not only the satisfaction of scholarship but also the means of a decent living? As the demand for men versed in American history is sure to be on the increase, this will be no problem. If we do really provide the opportunity, the men will be forthcoming.

Proposals and possibilities of Sino-American cooperation

Having stated the problems and pointed to their solutions, I shall attempt to suggest some of the means of achieving the solutions.

To foster interest in the study of American history, to train men for that work, and to facilitate the production of books, I propose the establishment of centers of American studies in one or more of the Chinese universities. They should not be limited to the study of history; they should be interdisciplinary inasmuch as knowledge of American government, of American economics, of American education, of American philosophy, of American literature and art will each enrich the understanding of American history. The teaching force will be recruited by pooling the personnel of the various departments and by inviting American scholars to come to teach and to direct researches. The students will take as many of the American studies courses as possible, but they need not devote themselves exclusively to such studies. They should know their own China and other nations besides the United States. They should have a broad basis before they enter into specialization. The centers of American studies should, therefore, be on the postgraduate level. As most of the universities in Taiwan have to devote a large part of their resources to undergraduate teaching, graduate studies in a special field need special personnel and special financial resources. Graduate students, if they are to devote their time to special studies, need scholarships too.

Such centers, with cooperative efforts among teachers and students, among American and Chinese faculties, can do a great deal to supply the books that I have said are sorely needed. They can do that by compiling, editing, writing, or translating, but above all the work should be well planned and coordinated. No effort should be wasted on books chosen haphazardly. Time and labor should also be economized by each doing the work he can do best. Suppose it is planned to produce a series of short biographies. A panel of the faculty members, American and Chinese, should make the choice of subjects and decide upon a mode of procedure. Then a student, a junior member of the faculty, or a team of both, should be assigned the subject that he (or they) can do best. For instance, a student of public finance may work on Hamilton, a student of political philosophy may work on Jefferson, a student having training in military science may work on Grant as a Civil War general. The senior faculty members will direct the work and supervise the writing. But even with economy of effort and perfect cooperation, ample resources and plenty of time are needed because writing, and even translating, is an arduous task, especially if the work is to be scrupulously done. The faculty members, in order to enable them to do their share properly, should be relieved of part of the teaching load; or better, given a grant that will allow them to devote full time to the work. The junior members of the faculty and the students should also be given grants that will support them during the months or years of research and writing. And, of course, for the researches, ample supplies of books and source materials are requisites. Practically all the universities and colleges in Taiwan are deficient in such resources. American gifts in men and books will be a most welcome cooperation. As examples of the gift in men, I may mention the sending over of professors by the University of Washington in the last three years to conduct classes and summer seminars in the National Taiwan University. For the gift in books, I may mention the "Books for Asian Students" project of The Asia Foundation, which in the past two and a half years has sent over 600,000 selected books in all fields of scholarship.

The American studies centers, besides production of books, can perform another important function in enlisting the interest of young scholars and training them to continue the work of their seniors. Every field of scholarship needs new blood. American studies in Free China, being something new, needs that above all. The existence of such centers and the nature of their work, carefully planned and well executed, will attract young talent. American studies in Taiwan, having been started, may hope to be perpetuated.

Through the financial backing of the Rockefeller Foundation, the University of Washington and the National Taiwan University have cooperated in holding summer seminars in American studies. That was done in the last two summers, and at the very time of our Conference, this year's seminar is scheduled to begin. As we had no previous experience in this work, we have been more or less groping our way to make the four to six weeks of summer work effective and worthwhile. We are not yet in a position to pronounce the work a success or a failure, but we can say that it did stimulate interest in the study of America. Last year we had an enrollment of almost two hundred assistants, graduates, and senior students, and we had to turn away a number of undergraduates because there was no room for them. There was not enough active discussion to justify the appellation of a "seminar," but they were glad to listen to things taught them and some have carried on the interest thus aroused. This is a beginning of a Sino-American cooperation in promoting American Studies, and its effect on American history teaching in China is obvious.

A NOTE ON POSSIBLE JOINT SINO-AMERICAN RESEARCH PROJECTS IN ECONOMICS

by LIU TA-CHUNG
DEPARTMENT OF ECONOMICS, CORNELL UNIVERSITY

On inter-discipline and other broad aspects of Sino-American intellectual cooperation, the Conference will undoubtedly receive many important and valuable suggestions from the membership. This note has to do merely with certain possible joint efforts in quantitative economic research. As envisaged in this note, the actual execution of the research projects proposed would be carried out primarily by economists in Taiwan; economists in the United States would participate in these projects mainly during the planning stage and later on in an advisory capacity.

In spite of the relative isolation of Taiwan, the economic faculty of the National Taiwan University and many other economists in Taiwan have made outstanding contributions to economic research. It may interest the Conference to know that Free China was the first country in Asia to compile a set of national income accounts according to the standard pattern recommended by the United Nations Secretariat.

Further progress in economic research and training can be hastened by close cooperation between economists in Taiwan and in the United States. During recent years, rapid developments have occurred in quantitative studies in economics in the United States. The coverage and quality of statistics published in Taiwan are very impressive indeed. Many of these quantitative approaches can therefore be advantageously pursued in Taiwan.

This note will discuss a few important areas in which joint research efforts appear to be most promising. Some tentative ideas on procedural questions will then be presented. These suggestions are of a long-range nature. To conclude this note, a more urgent research project will be recommended for the consideration of the Conference.

I.

IMPORTANT AREAS IN QUANTITATIVE RESEARCH

Basic economic data in Taiwan appear to be sufficient to undertake the following research or studies:

1. *Quarterly National Income and Product Estimates.* Since annual national income estimates are already well developed in Taiwan, it would not be a difficult extension to put the estimates on a quarterly basis. Quarterly estimates, promptly released, would be extremely valuable for the formulation of government and business policies and programs. Estimates of labor force and capital formation would be an important part of this project.

2. *Input-Output Studies.* I do not know whether input-output studies have been attempted in Taiwan, but data necessary for the computation of

input-output coefficients can be readily compiled. For evaluating and comparing resource requirements for different policies and programs for economic development, input-output analysis is very useful.

3. *Flow-of-Funds Studies.* The Bank of Taiwan has done a great deal of work in the field of financial flows. However, I am not sure whether a set of flow-of-funds accounts has been developed to the maximum possible extent. Recently the United States flow-of-funds accounts have been put on a quarterly basis and have proven to be extremely useful. Monetary and financial data are probably not as complete as statistics on production in Taiwan; but steps can be taken to close the gaps in statistics on the supply and use of funds.

4. *Econometric Studies and Mathematical Programming.* The research areas suggested above aim primarily at the compilation and processing of basic economic data; the ultimate purpose is of course to use these data for analytical and policy purposes. The econometric approach to analysis and policy formulation is still very young and immature. However, it appears to be a most promising method and is receiving increasing attention from economists everywhere. I have seen at least one interesting econometric study by a young Chinese economist in Taiwan, and I was told that interest in econometrics and mathematical programming is steadily growing. While time series data on the Taiwan economy may not yet cover a sufficiently long period for the application of econometric techniques, cross section data are surely available for making family budget, production, and cost analyses. Moreover, a number of simple techniques in mathematical programming are immediately applicable to many fairly large business enterprises in Taiwan.

II.

Development of Research Personnel

The most important prerequisite for undertaking these projects is, of course, research personnel. While most of the research projects outlined above would eventually require substantial resources and fairly large-scale operations, it is of interest to note in this connection that the initial attempts and the most outstanding contributions in the areas discussed above were made in the United States by scholars connected with universities. There are competent scholars in Taiwan to carry out these studies. However, compared to the needs, the number of economists specializing in these areas is small. The University of Taiwan and Academia Sinica are the logical organizations to take active steps to develop the required personnel. Economists in the United States can serve as advisers on methodology and on the formulation of concrete and detailed programs. I understand that there are a number of very good graduate students of economics in Taiwan. Many of them would probably be interested in the projects suggested here. Perhaps a good screening process to select genuinely interested and qualified graduate students for further training is to ask them to submit papers *relating to the proposed projects.* The topics should be of their own selection. No original contribution would be required, but these papers should show a certain degree of understanding of the subject matters. For instance, a paper summarizing the historical development of certain aspects of input-output study would be a good indication of the training and the ability of the author. A Joint Committee on Quantitative Economic Studies may be set up to delineate the research areas; to specify reading materials to interest candidates; and when papers are submitted (perhaps within six months after the assignment of reading materials), to read the papers and decide upon successful candidates. Further training of these candidates may be necessary, but specific programs of training can best be worked out in detail after the proposed Joint Committee has studied the papers submitted. However, assurance should be given the successive candidates with regard to the availability of responsible research positions and funds before they are required to undergo further training.

III.

A SPECIAL REPORT ON THE ECONOMIC GROWTH OF TAIWAN TO BE SPONSORED BY THE CONFERENCE

Newspapers and magazines in the United States are full of reports about the rapid industrialization of the Chinese Mainland. There are many indications that economic development is more balanced and possibly even faster in Taiwan than on the Mainland; yet people outside of Taiwan are generally not well-informed about economic progress in Taiwan. There are competent economists in Taiwan who may be entrusted with the responsibility of writing a special report on economic development in Taiwan during the past ten years. The Joint Committee on Quantitative Economic Studies, proposed in Section II., could cooperate in many ways with the author of this report in various stages of the project. The report would probably have greater influence if its objectiveness and competence could be verified and supported by the proposed Committee.

REFLECTIONS ON CONTEMPORARY HISTORICAL STUDIES

by CHIA-LUEN LO, *Director*
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The ever-increasing interest in the study of modern and contemporary history is meaningful and well justified. It is quite natural that we human beings, as such, must have retained a considerable amount of affection toward the past, no matter how remote it was, but it is a necessity for us to try to increase our knowledge and improve our understanding, from time to time, of the world that we are living in and of what has happened around us. All this will affect not only the course of our lives but the shape of things to come.

It is true that there are some distinct advantages for the historians working on the more distant periods of history. First of all, distance in the temporal sense always provides a clearer perspective. Secondly, the emotional elements in historical judgment generally fade away in proportion to the process of receding time. Thirdly, the later historical works invariably profit by more recent researches and discoveries.

Yet, to the historian whose field of study is quite close to his life-time, there are so many valuable assets that can never be denied. In the first place, he can claim, at least partly if not wholly, to be eye-witness of what has happened in the general historical movement during his life-time. He can make personal observations, watch the interactions of different movements, coordinate the various forces at work, collect numerous evidences, check and counter-check the different reports. All these kinds of work, although some of them might be affected by personal feelings and views, are nevertheless direct or first-hand historical materials which are most worthwhile to preserve. Confucius, whose historical annals, *Spring and Autumn,* has been venerated by our people for 2,500 years, sagaciously made the following comments, all about the same event:

> "To see in person forms one version,
> To hear from others, a different version,
> To hear from hearsay, a third far more
> different."

So he never hesitated in starting this immortal work, which covered 242 years, of which 73 years coincided with the span of his life. So was Confucius a true contemporary historian. I venture to suggest that the illustrious footsteps of Confucius should be followed by our fellow workers. I am sure that, equipped with a highly improved methodology, they can produce some greater and better historical works on the various aspects of human life and activities. If a large number of such works should be left by them for coming generations, it would be a wonderful legacy, a precious heritage for them, and particularly for the future historians who would thus gain more human wisdom and be better provided for reconstructing a series of ever new and more authentic histories of our time. To handle a colossal amount of historical materials is undoubtedly both a difficult task and a heavy burden for modern historians, but therein also lies their fruitful reward. It must be exhausting for them to examine heaps and heaps of papers, old and new, clear and undecipherable. But a great pleasure may come to one when suddenly one gets into the heart of the whole story. If we have noticed the painstaking work of an archeologist in reconstructing a certain period of ancient civilization through a few pieces of bones, pottery, and scattered inscriptions, what a rich treasure and how sweet a pleasure has a modern historian of contemporary history in his ready possession.

To supplement all those facilities, our colleagues still reserve some other privileges, such as the opportunities to verify certain important statements or records through meetings and interviews with individuals who are directly concerned. Sometimes it is ready made in the form of personal statements—memoirs or autobiographies being the standardized and more pretentious forms. The current interest in 'oral history' is one of the interesting new forms of truth-hunting, which may be a game spiced occasionally by human touches. I recognize the usefulness of such attempts. But I wish to just call forth a little caution that every statement or conversation consciously prepared by a performer in a particular act of historical drama must be carefully scrutinized. Rascals are accustomed to tell lies, but honest men can sometimes also refrain from telling the truth. From my personal experience, I have found out some very important truths in history through casual talks, even discovered certain historical missing links in some pivotal junctions.

In spite of the abundance of historical materials which we modern historians are so proud of, I have always harbored an apprehension, even fear, of the ruthless destruction of such materials by the wanton God of War in this nuclear age. In the United States some precautions have been taken in different forms of radioactivity-proof buildings and the like. Microfilm copies are useful and convenient. But many other countries simply cannot afford to take such precautionary measures.

The recognition of the importance of the preservation of history and historical archives is a national tradition in China and can be traced back more than 3,000 years. The sacrificial bones and shells of the Shan dynasty were carved with historical records and carefully kept in the ancestral temple. In the ancient courts, two historians were required to attend the auspicious occasions to take down what had happened, either in words or deeds. The philosopher Lao Tze was a historian in charge of the state records of the Chow dynasty. His office, perhaps, can be claimed by the present Academia Historica as the earliest, if not really the first, establishment in the line of its official family tree. It preserved a very old tradition, a good one too, in the fact that in order to keep historical objectivity, the records kept were not even allowed to be shown to the ruling sovereigns. The Academia Historica is chiefly commissioned to keep up a complete record, whenever and wherever possible, of the important events in order to prepare and produce a comprehensive history of the Republic of China, which can be divided into periods and topics in accordance with its policy of publication. It has inherited a traditional right, which was re-affirmed by the government ordinance, to take over the archives of the different ministries and government offices, central and local alike, when the immediate usefulness of such documents to the respective offices would expire. Even the classified papers, if the Academia Historica sees their historical value and importance, must be made available to the Academia for making copies for its own use.

To collect historical archives is our primary and also ground work. The Academia has already received 155 cases of documents, including some very important ones, from the Presidential Office last year, and there are more to come. Some of the ministries have contacted the Academia, expressing their willingness to turn over thousands of cases of documents which they had once made great efforts to save from the Mainland and ship to Taiwan. In order to be ready to receive such large endowments the most urgent need of the Academia is to build one or more big vaults which would be adequate to house and protect them.

While we are quite anxious to acquire additional historical materials we are, on the other hand, very cautious in planning the groundwork for writing history. So our whole project is to be divided into four stages.

First to collect, catalogue, examine, and re-arrange all the historical materials in our keeping according to specific systems designed for research and writing purposes. I wish to point out that to preserve some of the documents written or printed on papers of inferior quality is a very difficult problem to handle. To remount them is one way of solving the problem, but in some cases it is still not too adequate. Microfilm probably is a better method.

The second stage is to publish one or more series of historical documents according to the nature of their contents. It is a preparatory work to lay the foundation for future historical writing. It is also meant to supply, from time to time, historical materials for those of the general public, at home or abroad, who are interested in modern and contemporary history. Such a series will be more or less after the model of *Ko-ming Wen-hsien*, published by the Historical Commission of the Kuomintang, the contents of which are grouped according to various topics and usually arranged in chronological order, and whose editorial policy has been the self-imposed rule: "Everything published hereby must be completely true to the original text."

Third, we must start some intensive research work on various important subjects indispensable for a comprehensive history of the Republic of China. The great ancient historian Szi-Ma Chien was farsighted enough to write separate treatises on "Astronomy," "Waterways," "Economic Conditions," etc., in his grand historical work, *Sze Ki*, completed two thousand years ago. In this modern world of ours so many important human activities have been ramified and their consequences multiplied, it is beyond the capability of any one learned historian to master all of them. These new historical phenomena and remarkable human achievements must be separately dealt with by specialists in each field who must also, in turn, have a good historical background; that is, historical interest as well as training. We must encourage and urge them to write monographs, or still better, histories of their specialized sciences or fields, with special reference to the period in which our general work is particularly concerned. This would provide a better foundation for greater historical synthesis.

And finally, when the different ways of approach have been paved and time is more opportune, the comprehensive work must make its start; and as I have mentioned in a previous passage, it may begin with a certain historical period or event, such as the "Founding of the Republic of China" or the "War against Japanese Aggression." But as to the general frame of the proposed "History of the Republic of China," I wish to set up a "double track system," a specially coined term which needs a word of explanation. What I mean is that China has a very old tradition in historical works—in its form of organization, way of treatment, even in wording and style. The so-called "Twenty-Four" or even "Twenty-Five Histories" are more or less linked up by this tradition. With due respect to, and appreciation of, all the merits which had been so ingeniously and laboriously achieved by so many eminent historians in different periods, we do feel that, as time changes, a great deal of its substance and form, including methodology, should be changed accordingly. In spite of the fact that I do not like, for sentimental reasons or otherwise, to break up the long traditional chain, I want it to be greatly modified and would like to store new wine in old bottles. Adaptation is inevitable if the old form is to survive. This is what I have just meant to do for preserving the traditional track, but to my mind the second and new track to be installed in the system of Chinese historical writing is more urgent. It is quite a modernized approach. We need to adopt a modern methodology, a modern historical outlook, and a modern way of expression; that is, the use of modern language and style. We should preserve and uphold the best part of our national characteristics, but we should also conceive the world as a whole and evaluate everything of ours as an organic part of that whole. The events of the modern world are so interwoven that no national boundary is water-tight and no historian is fool-proof who fails to take pains to learn things from other countries. Intellectual cooperation is absolutely necessary, especially in the field of historical studies.

With reference to such problems as "The Republic and Nationalist Revolution," and "The Chinese Communist Movement," Prof. John K. Fairbank rightly pointed out "that the basic historical records on these subjects are actually in Free China, not on the Mainland." I wish just to add that there are many other collections of important archives which have usually escaped our attention. I used to take some little excursions in the field of historical resources, and I was bewildered to find the large quantity and fine quality of the hidden treasures. On the other hand, during and immediately after the Chinese Communist occupation of the Mainland, there was a huge quantity of Chinese historical materials shipped to the United States and preserved in several distinguished libraries. More important still is the tremendous amount of Japanese High-Command and Foreign Office archives captured by the American Occupation Forces which have just been microfilmed. In this huge mass of materials there are many valuable records about the long-drawn-out Sino-Japanese War. If these records could be compared and carefully studied, together with the Chinese documents, a quite comprehensive and more accurate history of this fateful war would result. This is another case to show the urgent need of intellectual cooperation between our two countries.

I, for one, am always ready to support such a joint effort in promoting a closer intellectual cooperation, particularly in my own field. I hope our efforts would proceed calmly and steadily and historical work, as such, be freed entirely from current politics. Only through mutual understanding and respect can we raise the torch of wisdom in the hand of Clio to promote a better world for wiser peoples.

PROPOSALS FOR COLLABORATIVE STUDIES ON THE CHEMISTRY OF NATURAL PRODUCTS

by JERROLD MEINWALD
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INTRODUCTION

The study of the chemistry of natural products is as old as chemistry itself. Chemists have always been especially interested in substances with useful or unusual physiological activities. In the present age of intensive chemical and medical research, it is important to realize that most modern medicines (for example: all the vitamins, penicillin, terramycin, morphine, reserpine, progesterone, cortisone, insulin) were first discovered in Nature. The search for new natural products is being carried forward in laboratories all over the world. The work involves isolation, purification, structure proof, chemical synthesis, and possibly biological testing. Some of the results may be of medical importance. All of the findings, however, are of intrinsic interest to chemists, and often to biologists. An active, cooperative research program involving Chinese and American collaboration should not only produce good science and good relations, but also should arouse the interest and attention of a large number of scientists all over the world.

Some natural products of Chinese origin

As examples of important natural products of Chinese origin, the following three cases may be mentioned.

1. *Camphor,* obtained from the Asian camphor tree, has been an important item of commerce since antiquity. It has both medical and industrial uses. Before a practical synthesis from turpentine was developed in the first part of this century, the world's main source of supply was Taiwan. Although camphor has been known for such a long time, its chemistry continues to provide one of the most fascinating areas in contemporary research.

2. The valuable drug *ephedrine* was first isolated from the Chinese drug "Ma Huang" *(Ephedra sinica)* by Nagai in 1887. Its therapeutic importance was first realized in the West as a result of a paper by Chen and Schmidt, published in 1924. Since ephedrine has the action of the natural hormone, adrenalin, and since it can be taken by mouth, this drug has had many applications.

3. *Hinokitiol,* isolated from Taiwan cypress (Hinoki-tree), and studied for the first time by Tetsuo Nozoe in 1936, is the only readily available member of an important group of compounds, the tropolones. The chemistry of the hinokitiol and related compounds is actively pursued both in Japan and in Taiwan, as well as in many other laboratories all over the world, and is yielding results of great theoretical interest.

Some specific proposals for cooperative research.

It is proposed to establish a long-range program of cooperative research into the natural products indigenous to Taiwan. This program could be brought into being in many ways and could develop in a variety of directions. The following suggestions are to be considered as illustrative.

1. *Study of the relevant literature.* It would be important, first, to review the status of present knowledge in the field of Chinese natural products. In this connection, translation of early material from Chinese into English might be important. Not only early literature, but also local folklore should be explored for clues to material of possible medical interest. Both plant and animal (insect, etc.) sources should be surveyed.
2. *Conferences of Chinese and American chemists.* It would be worthwhile to invite a group of chemists experienced in the study of natural products to meet with Chinese organic chemists, and possibly to visit Taiwan. A small symposium might be arranged. This group could try to map out the most promising specific areas for future cooperative research.
3. *Extraction and isolation.* After selecting the sources to be attacked, laboratory work on the isolation of pure components could be undertaken in Taiwan. The equipment needed for this work, even if not already available, would not be expensive.
4. *Chemical structure studies.* Work leading to a proof of structure of the compounds isolated could be pursued either in American or Chinese laboratories. This sort of work is of interest to a large number of American organic chemists, and many willing collaborators could be found.
5. *Biological testing.* Very extensive facilities exist in this country for the testing of new materials for a wide variety of biological activities. This sort of program would provide a good opportunity for cooperation with either government or pharmaceutical company screening laboratories.

Concluding remarks

A program such as the one outlined should excite the interest and enthusiasm of many scientists. It would call attention to some of the scientific problems and opportunities unique to Taiwan, and should lead to increased understanding of the needs and aims of Chinese scientists. One could expect many publishable results which might appear in the journals of either the Chinese or American Chemical Societies. These results would represent a permanent contribution to scientific knowledge. For these reasons, it should not be difficult to obtain the necessary financial support which would permit these proposals to become a reality. Aside from any of the normal sources of support available for assistance to Sino-American intellectual endeavors, the proposals outlined above might well be eligible for funds from the U.S. National Institutes of Health, The National Science Foundation, the American Cancer Society, or any number of governmental and private foundations interested in the advancement of science. These funds might not only supply essential chemicals and equipment, but also provide research stipends for project directors and research assistants, thus making it possible for the busy Chinese teacher to take time to pursue his research interests.

SUGGESTIONS FOR SINO-AMERICAN COOPERATION IN THE FIELD OF SCIENCE

by LYNNE L. MERRITT, *Associate Dean*
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In the general field of science, I feel that the rapid and complete exchange of information and thought is one of the most essential requirements for rapid progress. Thus, I believe that an exchange program involving mature scientists is of the utmost importance. The publication of research results in scientific journals is not a complete substitute for exchange of personnel for several reasons. There is often a considerable time lag between completion of the work and its publication in journal literature. More important, however, is the fact that only the bare bones of any research project can be published due to special limitations in most fields. Complete exchange of information, and especially of thought, reasoning processes, and tentative conclusions, can only be achieved by personal communication.

Personal communication is subject to one difficulty, the so-called language barrier. It is my understanding that most, if not all, students from Taiwan have studied English. The United States scientists generally cannot speak, read, nor understand Chinese. In order to get the most out of any exchange program, I feel that the exchangee should learn the language of the host country. This means that our United States universities must give more opportunity for the study of the Chinese language and Chinese literature. Many of the extra benefits of exchange programs, such as increased appreciation of the cultural heritage of the host country and an understanding of its problems and aspirations, are lost when communication is not complete.

Judging from what I have seen and heard at international meetings of scientists, I would guess that cooperation among scientists is most easily established. This is due to the fact that scientists are trained to believe in the universality of the laws of nature and recognize no national boundaries thereto. They are, in general, well aware of contributions made to their branch of science by men and women of many diverse nationalities and are grateful and appreciative of these contributions.

Exchange of students and young research workers should also be encouraged. Most universities in America can make available places for graduate students who wish to continue their work in science. I do not know what problems would be involved in the reverse exchanges. I hope that this Conference will bring forth any such problems and that some prospective solutions can be reached. It would facilitate exchange, I believe, if there could be established in each country a central place where all the credentials of students who wish to go to the other country could be processed, translated, enlarged (course content could be indicated), and comparative evaluations could be made. This would assist the host university in properly placing the students in courses. The personnel of such centers would have to be quite familiar with the institutions of both countries.

There are many specific areas of science where cooperation between any two specific groups may be especially productive. Thus the pharmacologist and the chemist interested in natural products may find products of great interest in another country. Many new drugs have been isolated from natural products long used and recognized by physicians. Botanists, zoologists, and geologists trained in one country may extend their knowledge and experience markedly by contact with a new environment. A quite different environment might serve as a rigorous test of theories and hypotheses previously developed by an individual, and new relationships might easily be observed by a scientist trained in another land.

RESEARCH COOPERATION

by **Franz Michael**
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In planning future cooperation in research projects between Chinese and American scholars, it will be useful to have in mind what has been done up to now. Let me just list the projects of which we have learned and those in which we have participated ourselves and say a few words about them in the hope that those who have had a share in any of them will add their impressions and evaluations.

I believe that The Asia Foundation deserves the greatest amount of credit for all that it has done to assist scholars on Taiwan and to stimulate their work. The Academia Sinica holds in its library the documents on the foreign relations of the Chinese government through the year 1925, which, with the special permission of the Chinese Foreign Office, can be used for research. A group of Chinese scholars under the leadership of Profs. Kuo T'ing-yi, Chang Kuei-yung, and Tao Chen-yu, with the support of The Asia Foundation, initiated a publication program that began with a series on "Sea Defense." The initiative on the side of The Asia Foundation came from David Rowe, who was the Foundation's representative on Taiwan between 1954 and 1956. In a recent letter, Professor Rowe informed me that as one of the results of his stay on Taiwan there will be published this month, under his editorship, and with the cooperation of various members of the Academia Sinica, the *Index to the Ch'ing Tai Ch'ou Pan I Wu Shih Mo*. This support of The Asia Foundation to Chinese scholarship on Taiwan was continued under Prof. Earl Swisher who deserves great credit for his initiaitve and energy. One of the new projects made possible through his support is the most important work done by Dr. Hsiao Tso-liang on the study of Chinese Communism, on which he himself is reporting. Our Far Eastern and Russian Institute has been happy to give some help in this project through consultation and through aid in the publication of the first volume on *Power Relations Within the Chinese Communist Movement, 1930-1934*, which is being edited at present by our staff and will be published by the University of Washington Press. We have benefited greatly from this cooperation, which resulted in a first publication containing Dr. Hsiao's able analysis of important new material.

One of the major efforts in bringing about cooperation between Far Eastern and American institutions and assisting Far Eastern scholars in key projects of research, has been undertaken by the Harvard-Yenching Institute in Japan, Korea, and Taiwan. I hope that Prof. Yang Lien-sheng will elaborate on this program and its results and give us his evaluation and a description of present plans. It is my understanding that the policy of the Harvard-Yenching Institute has been to provide a definite amount each year for the support of research projects, which are to be selected by a committee of scholars of the country concerned. This procedure has the advantage of bringing together a group of scholars for a joint discussion of research plans and research projects.

The efforts of the Far Eastern and Russian Institute have been, in the main, concerned with giving support to two groups. One is the Modern Chinese History section at the Academia Sinica, already mentioned. Our own interest in the field of Sino-Russian and Sino-American relations has led us to give our support to two projects of documentary publications which were carried on for a period of two years beginning in 1958. This project has already published the volumes on Historical Material of Chinese-Russian Relations which are at hand. This most valuable documentary material has thus been made available to scholars. We owe our thanks to our Chinese colleagues and to the Chinese Foreign Office for these publications and those that will follow. Dr. Kuo will, I am sure, give us more information on the present status of this work.

Our second project of cooperation has been with a group of three professors of National Taiwan and National Normal universities, Prof. Wu Hsiang-hsiang, who has been in charge of the group, Prof. Ch'uan Han-sheng and Prof. Wang Teh-chao. Professor Wu has done work on the important revolutionary leader, Sung Chiao-jen. Professor Ch'uan has written on the problems of the railroads and the revolution, and Professor Wang has been concerned with a critical analysis of Sun Yat-sen's political thought. This work has resulted in a number of studies which have been incorporated, together with other historical essays, in the first two volumes of a series on Contemporary Chinese History edited by Prof. Wu Hsiang-hsiang. These volumes, we believe, indicate a new initiative in research on modern Chinese history to which we are proud to have given some encouragement and support.

A completely different project of cooperation has been established between the University of Washington and the National Taiwan University through the American Studies Program. On this a special report will be given by Dr. Treadgold, who has himself spent six months on Taiwan under this program. From Taiwan, Professor Hsia, who is with us here, has come under this program and has participated in the work of our Modern Chinese History Project.

In addition to these formal projects we have had an exchange of visits of shorter or longer duration which have been most helpful to us in our work. Several professors from Taiwan have been on our campus. Professor Li Chi has given a number of lectures that have been published by the University of Washington Press under the title, *The Beginnings of Chinese Civilization.* Prof. Cheng Chien has given courses and seminars to our students on Chinese literature. Prof. Tung T'ung-ho has taken the place of Prof. Li Fang-kuei when Professor Li was on sabbatical at Yale University. Several Chinese colleagues visited the campus for shorter periods. We have also had a number of Chinese students from Taiwan for graduate training in various fields. This experience which we have had is, we know, similar to that of several other institutions, and we feel that the growing exchange of faculty and students between Taiwan and the United States has been most encouraging.

But this is only a beginning. Our own impression from this past experience of cooperation is that it has served a useful purpose in stimulating work on both sides and in keeping contact between Chinese and American scholars, but I believe that much more can and should be done.

Research cooperation is, I believe, not simply a problem of exchange of bodies and material and of giving support to new worthwhile projects, important as that may be. The real exchange must be in the realm of ideas. Only in a discussion of ideas can we come to new concepts through which we can advance in scholarship and deal with the new problems of a constantly changing world. Thought is individual creation. But exchange of thought provides the nourishment on which individual creation rests. Advance in scholarship is a matter of continuing debate between scholars not only from one field of study but also from different disciplines and from different cultural traditions. In the modern world we all have to reinvestigate our concepts and intellectual traditions, and while we do not want conformity, we need a common stock of ideas to apply to different problems. The exchange of ideas depends, of course, in a large measure on a close contact between scholars and their participation in the work carried on at different institutions in different countries.

In the field of Chinese studies we are faced with a massive effort on the Communist side to rewrite and present Chinese history not on the basis of a scholarly approach but in the doctrinal pattern. It is therefore urgent that Chinese and American scholars, committed to the independent search for truth, establish scholarly analysis and a record of Chinese history and cultural tradition that can be used as a basis for free education the world over. For this an exchange of ideas is most vital.

But we are dealing, of course, with much more than Chinese studies. What we are trying to do is to contribute in all fields of studies to the growth of scholarship in our free tradition, which is today facing an intellectual contest with the doctrines of the Communist world.

A PROPOSAL CONCERNING PERSONNEL FOR CHINESE LANGUAGE TEACHING AND CHINESE-JAPANESE LIBRARIES IN THE UNITED STATES

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I.

The recent stimulus to Chinese studies in this country, while somewhat overdue, has found us embarrassingly short of qualified personnel. Plans for growth to be implemented within the coming year or two at many universities throughout the country will still further increase the number of teaching positions in the China field. We can now predict confidently that Chinese language will soon lose its "exotic" label and will take its place as an accepted and recognized modern language, in the way that Russian has done within the last decade.

It is not, perhaps, being too frank to say that some of this recent growth has forced American universities and colleges to hire persons of low qualifications. While this is more or less inevitable, and will correct itself in most fields with the natural growth of Chinese studies, in the field of Chinese language teaching the prospects for an adequate supply of teachers is not at all bright. The number of Americans being trained is very small. A *New York Times* article (Education Page, July 3, 1960) calling attention to the small number of Americans studying Chinese language, pointed out that there was only one Ph.D. in Chinese Language and Literature granted in the whole country in the academic year 1958-59, the latest year for which statistics exist. Most Americans who study Chinese do not do so to become language teachers. Those who do still need Chinese native-speakers as colleagues in their work.

Therefore, I feel that the growth of Chinese studies, now undeniably stimulated and rapidly expanding, none-the-less faces a serious bottleneck at this point and one that can be overcome only through international cooperation. With this in mind, I propose that this Conference should work toward formulating a systematic and well-reasoned solution and seek means of implementing it.

My own proposal for a solution would be to establish in Taiwan a training center for teachers of Chinese to foreigners. The Japanese and French and several other governments find this a matter of such national interest that they maintain such centers. The matter should also be of considerable national interest to the government of China (indeed the Peking regime has such an institute), but we might feel that though government support would be desirable the task could be better managed by academic institutions. Such a center should undertake to give short-term, intensive training to persons whose educational qualifications are adequate, to create a pool from which institutions abroad could employ language teachers, confident that they would have professional competence and could be safely hired from a distance, sight unseen. The qualifications probably should include: knowledge of English (or other foreign language); good foundation in Chinese; ability to speak standard *Kuo-yü* (without overly rigid insistence on Peking pronunciation); etc. The special training probably should include: some basic orientation to foreign university methods; introduction to linguistics; knowledge of romanization systems and some basic Western textbooks and methods of teaching, etc.

The length of training would vary with the applicants. Many would have an opportunity to gain experience and find careers in teaching foreigners in China. In some cases, the trainees might be persons desiring to make a career of language-teaching. In others they might be Chinese college students in other fields who hope to earn their way through graduate education abroad by working as part-time language informants or teachers. American universities might well give graduate fellowships in all fields to such trained teachers of language, with the understanding that they earn their way in this fashion for at least a portion of their graduate education.

There are several obvious hazards to be avoided. One is that the training agency in Taiwan would face severe pressure from persons who would want to utilize this opportunity to get visas to go abroad, and who would not then give the service expected of them. A few "lemons" of this kind would destroy the reputation of the training center, and defeat its purposes. Therefore, it should be set up under academic auspices that could be counted on to remain unprejudiced, discriminating, and objective in the performance of its tasks and in recommending its trainees.

II.

A similar crisis exists in the library field. Many universities have unfilled positions in their Chinese-Japanese libraries, and the need is constantly growing. Here Taiwan is in a position to supply library personnel, particularly from among native Taiwanese, who know both Chinese and Japanese. A training program could be established in a school of library science in China to train both career librarians and students who might want to work in foreign libraries while earning their way through school. However, the investment in special training in China would be greater than that for language teachers. Librarians or library assistants would have to learn many technical aspects of library science, in addition to English, in order to qualify. However, the career possibilities would be very attractive, and could be made more so if American institutions would devise more flexible arrangements through which to employ "librarian-bibliographers" or "librarian-research scholars" or other means of combining library appointments with scholarly careers.

In both of these areas American studies of China face personnel crises which can be overcome only by creating a pool of Chinese human resources on which to draw. The concrete methods suggested here may not be the best ones, but this Conference should not fail to give these matters some attention, and propose methods for their solution.

A PROPOSAL FOR THE ESTABLISHMENT OF A STANDARD MICROFILMING INSTALLATION ON TAIWAN

by G. RAYMOND NUNN, *Chairman*
COMMITTEE ON AMERICAN LIBRARY RESOURCES ON THE FAR EAST, ASSOCIATION FOR ASIAN STUDIES

1. Taiwan is now the only leading center in the Far East without a standard microfilming installation.

2. This proposal has been strongly supported by C.A.L.R.F.E. since 1958 for its value to research interests inside and outside Taiwan.

3. Technical training might be provided by Union Research Institute, Hong Kong, or National Diet Library, Tokyo.

4. The cost of such an installation might be around $5,000.

STUDY OF INTERNATIONAL LAW IN CHINA

by Peng Ming-min
COLLEGE OF LAW, NATIONAL TAIWAN UNIVERSITY

International law is a young knowledge in the Western world. It is even younger in China. Until the middle of the nineteenth century, international law in the modern sense of the word was unknown to the Chinese. According to the traditional legal and political thinking in China, ". . . all territories under the sun are the Emperor's possessions; all those who partake of the products of nature are the Emperor's subjects," so that the existence of an international community composed of the sovereign and equal nations was indeed inconceivable to the Chinese mind.

It was from the time of the Opium War, and after the defeat in both war and diplomacy, that the Chinese gradually realized the importance of understanding, appreciating, and studying the Western world as well as Western civilization. A Chinese prince who was in charge of foreign affairs remarked in 1864: "Foreigners in China are inclined to study our language and civilization and are often shrewd enough to quote our law and system to their advantage. Likewise, it would be advisable for us to quote their law and system to their disadvantage. Unfortunately, foreign laws are written in languages we do not understand."

In order to meet the urgent need, an American missionary, W. A. P. Martin, had a plan to translate Vattel's *Le Droit des Gens* into Chinese, but at the suggestion of John E. Ward, American Minister to China, Henry Wheaton's *Elements of International Law* was translated instead. Another American minister, Anson Burlingame, presented this translation to the Chinese government and urged its publication. This was in 1863. At first the Chinese government was rather skeptical as to the value of this manual, but when Prussia, which was at war with Denmark at that time, captured three Danish ships in Chinese waters, the Chinese government quoted Henry Wheaton in protest to Prussia and won the case. Confidence in international law was thus established on the part of the Chinese government.

Since then, authoritative textbooks on international law have been translated into Chinese one after another. Charles de Marten's *Le Guide Diplomatique*, Woolsey's *Introduction to the Study of International Law*, Bluntschli's *Le Droit International Codifié*, Sir Robert Phillimore's *Commentaries Upon International Law*, and many others have had the Chinese translations. Eminent American scholars of international law, such as Prof. G. G. Wilson of Harvard University, and Prof. Quincy Wright of the University of Chicago, have been visiting professors at the leading universities in China.

By now, international law has become a compulsory course in all schools of law and political science in China. Besides, the courses of international relations, international organizations, law of treaties, international maritime law, and international air law are opened to students in Chinese universities.

International law is also one of the popular fields of research for Chinese students going abroad, especially to the United States, for advanced study. Since 1922, there has always been a Chinese judge sitting on the bench of the International Court at The Hague.

A brief survey of the history of international law study in China shows the United States has been indeed the principal seeder and cultivator of this Western knowledge in modern China.

For future Sino-American cooperation in the field of international legal studies, the following suggestions are submitted by this writer:

1. *Opportunities should be given to the Chinese international lawyer for more comprehensive and systematic study of the court decisions involving international law.* As China has adopted the continental legal system, there is an undeniable tendency among Chinese lawyers to lay less stress on case study in both teaching and research. In this regard, the situation of international law is even more acute in China. Since extraterritoriality existed in China for a century, and it was only in 1943, when new treaties with the United States and Great Britain were concluded, that Chinese courts began to exercise complete jurisdiction over all the aliens in China, the cases involving international law that have been decided by the Chinese courts, if any, are too few and the material too scant to enable Chinese students to make any systematic study. In such circumstances, one is obliged to study the dicta made by foreign judges and try to find out the ratio of the case. American universities can no doubt offer invaluable facilities for Chinese students who wish to pursue case studies of international legal relations.

2. *Translation of the international law classics into Chinese.* It is believed that the study of international law in China has already passed the period of "enlightenment" to enter the stage of independent search for the Chinese concept of international law. But since international law is originally the law of nations in Europe and is based upon Christian morality, Western culture, and the public law of Europe, it is submitted that besides the translation of modern international law text books into Chinese, the thoroughgoing and exhausive study of international law classics, such as the works of Vitoria, Suarez, Grotius, Pufendorf, Wolff, Vattel, Bynkerschoek, would contribute greatly, in the long run, to the real progress of international law study in China. For this purpose, the plan for the translation and publication of these classic works in Chinese should be carefully made and carried out as a long-term Sino-American academic endeavor.

3. *Study of the effects of the recent development of technology on international law and relations.* Recent technological development, such as the apparition of artificial satellites, atomic or nuclear weapons, has had an immense impact on world politics and posed among the nations numerous new legal and political problems which are extremely grave and complex. As one of the leading nations in technology, the United States is most qualified to apprehend, analyze, and eventually contribute to solve these problems which concern the future of human civilization.

AIDS FOR THE PROMOTION OF HUMANITIES IN TAIWAN

by SHEN KANG-PEH, *Dean*
COLLEGE OF LIBERAL ARTS, NATIONAL TAIWAN UNIVERSITY

Intellectual relations between China and America have become closer since the cultural center has shifted from Mainland China to Taiwan. Cooperation has been carried out in different ways, such as through exchange of professors and students, endowment of books and equipment, provision of fellowships and scholarships, research visits of American scholars to Taiwan and Chinese scholars to the States, and so on. Much has been done or is just being done in the fields of natural science, mostly in its applied branches and some in the theoretical. Comparatively speaking, the humanities seem to have received rather less attention. However, some foundations and institutes are beginning to be interested in these fields, too. As an old Chinese saying goes: "Dew in drops is sweeter than rain in torrents." This may be interpreted as a small aid in need is a worthy aid indeed. Having been Dean of the College of Liberal Arts of the National Taiwan University for twelve years at such a hard time, I personally do feel that the more difficulties I encounter, the more grateful I am for any friendly help, no matter how small it is. Therefore, perhaps, it will not be regarded as entirely of no consequence if I report with comment on some timely support given to the Academia Sinica and the National Taiwan University for the promotion of humanities by the following foundations:

I.

THE CHINA FOUNDATION FOR THE PROMOTION OF EDUCATION AND CULTURE

For ten years, from 1950 to 1959, this Foundation has offered annual fellowships, varying from five to four or three, to the young faculty members of the National Taiwan University for pursuing advanced studies in the United States, except for three, who went to Europe. So over $150,000 out of the Indemnity Fund, which had been returned to China by the U.S. Government, were given to the University. Forty-one teachers, from professors down to assistants, have been benefited by this grant, and among them eight belong to the College of Liberal Arts. What is more significant is that the China Foundation grant was the first financial aid that the National Taiwan University ever received from outside sources at the time when the University felt it most urgent to have its young assistants well prepared for teaching and its Japanese-trained professors and instructors brought abreast of new knowledge and techniques in their special fields. This grant was stopped this year, and seems not likely to be renewed in the near future; but it has well served the University in two ways: namely, strengthening the teaching staff to some extent and stimulating the others who did not have the chance of receiving the grant.

In the past few years, from 1956 to 1959, the China Foundation also awarded three fellowships to the Institute of History and Philology of the Academia Sinica for research visits to the United States. Besides, the Foundation granted $7,500 to the same Institute for the printing of three important books: *Pottery of Yin and Pre-Yin Period* by Dr. Li Chi; *Oracle Bone Inscriptions* by Mr. Chang Pin-chuan, and *Architectural Remains of the Yin Dynasty* by Mr. Shih Chang-ju. These scientific studies of the finds excavated in the Yin-Shang sites at Anyang had been prepared for some time but could not be put into printing until the China Foundation stepped out to give her help.

II.

THE HARVARD-YENCHING INSTITUTE

Under the visiting scholar program, the Harvard-Yenching Institute invited one of the faculty members of the National Taiwan University to do research in Asian Studies at Harvard University in the academic year 1954-55. Since then the invitation has been extended alternately to the Colleges of Liberal Arts and Social Science every other year, and the visitor may stay in Harvard for another year. Three scholars of the Arts College have already made good use of this privilege, each staying in Harvard for two years, and a fourth scholar is going there this summer.

Since 1956, this kind of invitation has also been extended to the Institute of History and Philology. The said Institute sends out one of its research workers every year. Altogether three have gone and come back, and a new visitor is leaving for Harvard soon.

A more effective way of promoting Asian studies, which has been successfully tried by the Harvard-Yenching Institute, is to establish local research councils in East Asian nations. In August, 1957, a number of eminent Chinese scholars and leaders of academic institutions were approached by Prof. Yang Lien-sheng, representative of the Institute, with such a proposal, which was so well received that after several preparatory meetings the China Council for East Asian Studies was formally inaugurated in December of the same year. This Council works for the promotion and furtherance of studies in the various disciplines within the framework of Chinese culture, especially as related to the humanities. It is currently the recipient of annual grants by the Harvard-Yenching Institute, with which it finances significant research projects and provides young scholars with needed scholarships and fellowships. In the Harvard-Yenching Institute proposal, it was stipulated that the China Council, being equal in status with the Institute, is free to seek for additional financial sources elsewhere, a privilege the Council has not yet utilized.

The Council has three main activities at present: financing of research projects and training projects; monthly meetings for discussing research results among members, grantees, and occasionally outside guests; and awarding of scholarships and fellowships to promising young scholars and postgraduates in different universities. Financing the research projects always occupies the largest part of the Council budget. In fiscal year 1957-58, the Council supported two projects; for 1958-59, it accepted 15 out of 21 applications, which were all completed as scheduled toward the end of June, 1959. During the current year, there are 21 projects proceeding on Council funds. Another 21 projects, slated to begin in July, 1960, make up the 1960-61 Council program.

Among these research projects, some are quite significant and worth mentioning here. The *Historical-Critical Edition of Yuan-chao Pi-shih With a New Translation in Modern Popular Chinese and a Comprehensive Commentary*, by Prof. Yao Ts'ung-wu, seems to be a monumental work. The publication of the *Diplomatic Files of Sino-French Relations Relating to Indochina* and the compilation of *Documents Concerning the Misssionary Affairs and Accidents in Late Ch'ing Dynasty*, both by the Institute of Modern History, Academia Sinica, are really contributions to historical studies, for they have made the archives of the *Tsungli Yamen* readily accessible to the public. "The Catalogue of the Porcelain Collection of the Palace Museum," by Mr. Wu Yu-chang, when finished, will cover the Dynasties of Sung and Yuan with a careful study on some 1,500 pieces of rare porcelain from some 26 individual kilns. Painstaking accuracy and scrupulous scholarship can be expected from such an expert. Prof. Chen Ching-ho of the National Taiwan University is working now in Vietnam on the "Arrangement and Cataloguing of State Reports and Memoranda of the Ngyuen Dynasty of Vietnam." These documents, covering the years 1802-1946 and the reign of two kings, are partly in Chinese and partly in Vietnamese. Many hitherto unknown historical data are hidden among them. As Chinese is no longer used in Vietnam, while the Vietnamese language is rarely mastered by foreign scholars, Professor Chen is uniquely fitted for this task. He is now working with the blessing of the Vietnamese high authorities, including President Ngo Dinh Diem, and this shows the significance of his work. "A Translation and Annotation of the Svarasvasti-byakarana-sutra and Its Commentaries from Tibetan" is undertaken by Prof. Ouyang Wu-wei. This Sutra, which deals with the first of the five ancient Indian branches of knowledge, has so far never been completely and systematically studied by Chinese scholars, and so the present work will be a milestone in Chinese Buddhist studies. Some other projects, such as "The Retranslation and Re-edition of the Manchu Version of Ching Tai Tzu Shih Lu," "The Compilation of Materials of China's Concept of the West in the Last Century," "A Study on the Ancient Chinese Jade," "A Study on Population and Food Production and Consumption in Taiwan," are undoubtedly of a very scholarly and contributive nature.

So far, five books have been printed directly with Council financing, and a number of papers have appeared in scholarly journals. More are expected to follow.

Thus, the Harvard-Yenching Institute spends about $20,000 a year through the China Council and has really done much for East Asian studies as well as for those scholars who are engaged in this pursuit. In return, the

China Council has decided to do some work for the convenience of American scholars of Asian studies. This will be the compilation of an abstract or digest of learned articles in the field of East Asian studies that have been published in the past decade. And this is scheduled to be published in the next year.

The Harvard-Yenching Institute is also going to finance an Inter-Council Conference involving the China, Japan, and Korean Research Councils, tentatively scheduled for November, 1960. Originally suggested by the Korean Council as a means whereby scholars of the three national areas may become acquainted, the Conference, with the China Council as host, will provide an opportunity for the three Councils not only to compare notes on recent trends and achievements in East Asian studies in the areas represented, but also to deliberate on the exchange of publications, research materials, and personnel; the possibilities of cooperative research and publication; and the problem posed by the language barriers and its solution.

III.

ROCKEFELLER FOUNDATION

Upon the suggestion of Dr. Fahs, Director of the Humanities of the Rockefeller Foundation, the authorities of the National Taiwan University and the University of Washington discussed and agreed in 1957 to cooperate for the promotion of American studies in Taiwan with the financial support of the Rockefeller Foundation. The two universities immediately took steps to organize their own committees to draft an experimental project which was approved by the Rockefeller Foundation. Its main concern was to set up an American Studies Summer Seminar at the National Taiwan University for two consecutive summers, 1958 and 1959. A social scientist or a humanities scholar from the University of Washington would come over to Taiwan to work with the National Taiwan University committee in conducting the said seminars and to offer courses of academic credit. As an exchange visiting scholar, a member of the National Taiwan University faculty would be in turn sent to the University of Washington to undertake research work and to give lectures on some special subject, if required. All these projects were duly carried out and, thanks to Profs. Rhoads Murphey, Donald Treadgold, and Liu Chung-hung, the two seminars were reputed successful.

After these trials, the two universities concluded that the cooperation was both highly desirable and feasible. Accordingly, they submitted a detailed report to the Rockefeller Foundation and suggested that a long-range program of cooperation be made possible for the promotion of American studies in Taiwan for the academic years 1959-60 through 1962-63. But this joint proposal has not yet found the support of the Rockefeller Foundation, which only consented to some smaller and shorter-term projects. Hence two grants were made for 1960: one to the University of Washington for a professor of humanities to come to teach in the National Taiwan University, the other to the National Taiwan University for carrying out another summer seminar.

Prof. Jacob Korg of the University of Washington arrived in Taiwan in March and immediately began to give undergraduate courses in the Department of Foreign Languages and Literature of the National Taiwan University. The Summer Seminar on American Studies is scheduled to begin on July 11 for six weeks till August 19. The Program will be divided into two periods. The first two weeks will be given to general lectures, whereas the remaining four weeks to reading seminars, which are divided into five groups according to the main themes to be discussed and studied by each. These five themes are American History, American Literature, American Government and Politics, American Economy, and American Education. Under the co-direction of Profs. Korg and Chang Kuei-yung and with the help of three other professors from three Chinese universities, this seminar will undoubtedly achieve much.

However, a summer seminar held once a year is certainly not enough for the furtherance of American studies. It would be necessary to set up a Department of American Studies or an American Institute (to be closely connected with other Departments of the Arts College) with its own regular staff and a special library. Students enrolled in this Department or Institute should first undergo an intensive training in the English language, for the one year course of College English on the present curriculum is really far from being effective to have the students well prepared for pursuing any special field of American studies. If this ambitious proposal could be adopted and carried out by the two universities, their cooperative work would probably yield some big and lasting results.

Another Chinese institute benefited by the Rockefeller Foundation grant is the Institute of History and Philology of the Academia Sinica. The Foundation provided $45,000 for special research projects to be carried out in the period from September, 1958 to August, 1961. As a result of this financial help, five books have been published. They are (1) *A Historical Grammar of Ancient Chinese*, by Mr. Chou Fa-kao; (2) *A Report on the Archaeological Remains of Yin Dynasty at Hsiao Tun*, by Mr. Shih Chang-ju; (3) *On Textual Criticism*, by Mr. Wang Shu-min; (4) *Ming Ching Shih Liao*, the seventh series in ten volumes, by Mr. Li Kuang-tao; and (5) *Oracle Bone Inscriptions* with annotations by Mr. Chang Ping-chüan. Five others are either in printing or ready for the press now. Ten other projects are scheduled to be accomplished in the coming August and are expected to be published in the next year.

Besides the research works, 280 titles of Japanese and Western books, totaling $3,035, were bought in the last year. A set of the Supplementary Collection containing 750 volumes of the Buddhist Tripitaka and a small portion of the microfilm reproduction of the archives in the Japanese Ministry of Foreign Affairs (1868-1945), totaling about $4,000, will be added to the library this year.

There will be another five senior and five junior grants to be awarded to the research workers of the Institute for ten new projects, and a number of new books are expected to be bought in the next year.

IV.

THE ASIA FOUNDATION

In 1958, The Asia Foundation granted $10,000 to the Postgraduate Institutes of History and Chemistry of the National Taiwan University to be used as (1) fellowships to the students, and (2) subsidies to professors who conducted seminars and supervised the works of research students. The right of allotting the money was left to the University authorities, and $3,800 was given to the History Institute for the academic year 1958-59. Three sudents were awarded full fellowships (NT$300), and another three a half each. Five professors received different sums of subsidies, varying from NT$500 to $3,000, according to the number of students under their supervision. Besides helping the National University to establish the Department of Sociology and a research institute for rural society, The Asian Foundation now extends its grants to the History and Chemistry Institutes for the academic year 1959-60. The amount allotted to the History Institute is $4,500. Seven professors are now drawing different sums, from NT$600 to $3,000, while three students get full fellowships (NT$400 each) and five obtain a half each.

Professors who receive the subsidies have the obligation of devoting their whole time and energy to their teaching and research works. Accordingly, three have given up their part-time jobs outside the University, and so the discipline and efficiency of the Institute have been greatly increased. Three students have already finished their theses, and others are expected to complete their work in the next year. If this kind of grant could be continued and expanded to other postgraduate institutes at this time when professors are underpaid, it would be a great help in engendering enthusiasm in the academic world.

In lieu of a conclusion and as a token for expressing my gratitude to those whose assistance to us has been inestimable, I sincerely hope it may not be entirely out of place for me to bring forth what has long been on my mind. In reporting on the Rockefeller Foundation, I have mentioned the need for the establishment of a new department or institute devoted entirely to American studies. There is no denying that the United States, formed into a nation such a short time ago, has become a world center of learning, especially with respect to the humanities and the social sciences, which, unlike the natural sciences, are bounded in by national characteristics. Yet in China there is no place that offers anything remotely resembling systematic American studies. This sad state of affairs has come about not because of any snobbery or ignorance on our part, but because we do not have the money or the people.

I also mentioned more language training. Such training is needed not only by students of American studies, but also by American students who are doing Chinese studies. I have seen on my campus many an American student who, though capable of some halting Chinese speech, is completely lost when following lectures or reading Chinese texts. That Chinese is a difficult language may go without saying, but we can no more permit a student majoring in American studies to know no English than one majoring in Chinese studies to know no Chinese. Thus, the language center may be a two-way house that drills in both English and Chinese.

Another thing is American studies textbooks. This may have to involve the setting up of a board, or boards, to be in charge of the compilation. The ideal compilers of such books will no doubt be Chinese scholars with an American education, and the advantage of this choice is obvious. To keep such a board, or boards, busy, I can think of a very useful occupation for their time. The editing of a Chinese history in English is, I think, a great need considering how deficient and inaccurate are those now available in the bookstores. And this would also be another step in the direction of Sino-American cultural exchange.

A fuller effort will certainly be necessary for this exchange, encompassing at the very least the exchange of books, microfilms, and other forms of materials, of professors and students, and illuminating correspondence between research students. More specifically, and something that can start from scratch, is the paraphrasing and footnoting of individual Chinese classics into modern Chinese vernacular, for their language may prove even more difficult to an American student who learns his by linguaphone. To promote better understanding of scholarly achievements in China, the China Council, as I have reported, is currently engaged in compiling an abstract of learned articles published in Chinese journals during the past ten years. I am sure the writing, compiling, publication, and translation of precis or reviews of articles of comparable contents published in American journals will be as, if not more, significant and contributive.

THE ROLE OF THE FULBRIGHT PROGRAM IN THE DEVELOPMENT OF SINO-AMERICAN INTELLECTUAL COOPERATION

by SHEN YE-TSEN, *Executive Secretary*
U.S. EDUCATIONAL FOUNDATION IN THE REPUBLIC OF CHINA

Ever since the end of the Second World War, the world has been in a state of confusion, fear, and crisis. It would be folly to view the present situation with either complacency or despair. On the contrary, we must accept this challenge and by all means build up a world in which individuals as well as nations will be assured of liberty and justice. Liberty frees us to be masters of our own destinies, to seek and secure happiness in accordance with our own systems of value. Justice protects us against arbitrary and capricious acts of other governments and individuals and forbids us to exercise freedom in ways that encroach upon the freedom of others.

This calls for vigorous action and a long-term program aiming at international understanding. International understanding is a broad term and necessarily encompasses many things. It does not connote the absence of national loyalty nor an unrealistic approach to the world. Rather, it includes the process of making us informed and loyal citizens of our own country—aware of the nature of the world in which we live, the relationship of our own nation to the world as a whole, the forces that motivate national action, the life and institutions of other nations, and many other things in order that we may bring our intelligence and judgment to bear upon the problems of living in an interdependent world. These are of importance to us for they are the factors that shape our world and will continue to shape our world of the future. It is here we see the role played by the Fulbright program; for this program, as a part of the International Educational Exchange Service, specifically seeks "to strengthen the community of interest between the people of the United States and other free peoples by increasing awareness and understanding of each other's cultural, intellectual, social, political and economic life" through the interchange of persons, knowledge, and skill.

China was the first country to sign an executive agreement with the United States for the implementation of the Educational Exchange Program under the terms of the Fulbright Act (Public Law 584, 79th Congress). The agreement was signed in Nanking on November 10, 1947, and the United States Educational Foundation in China was thereby established. However, the program operated for one year only since it was interrupted in 1949 when the Communists took over the mainland of China. On November 30, 1957, a new agreement was signed between the United States and the Republic of China in Taipei, re-activitating the Fulbright program under the United States Educational Foundation in the Republic of China (USEF/C). The management and direction of the affairs of the Foundation are vested in a Board of Directors consisting of eight members, four Americans appointed by the American Ambassador and four Chinese appointed by the Chinese Government, with the American Ambassador as Honorary Chairman of the Board. The Foundation is financed by funds made available mainly by P.L. 480, 83rd Congress. To facilitate the administration, several committees have been formed; namely, the Executive, Program, and Screening Committees. Day-to-day operation is carried out by a secretariat.

As regards the USEF/C program, the policy of the Board of the Foundation gives priority to the basic sciences, which account for about half of the program expenditures. American and Oriental Studies come next, followed by Social Sciences and Humanities. A small portion of the funds have been allocated to English teaching and other unspecified fields. Since the program is a two-way exchange, the grantees include both American and Chinese lecturers, research scholars, teachers, and graduate students. The following is a summary of the grants under the programs from 1958 to 1960:

	Title	*Category*	*1958-59*		*1959-60*		*1960-61*	
			US	*Nat.*	*US*	*Nat.*	*US*	*Nat.*
1.	Basic Science	Professors	1	2	5	7	6	7
		Teachers	–	2	–	2	–	–
		Students	–	2	–	11	–	2
2.	American Studies	Professors	–	–	2	–	1	–
		Students	–	–	–	4	–	8
3.	Oriental Studies	Professors	–	–	1	7	2	2
		Students	–	–	3	–	4	–
4.	Social Science & Humanities	Professors	2	–	2	–	–	–
		Students	–	–	–	9	–	9
5.	English Teaching	Teachers	–	3	–	2	–	2
6.	Unspecified Grants	Specialists	–	2	–	1	–	2
		Students	–	–	–	–	–	2
	Total		14		56		47	

In addition, much use has been made of the inter-country exchange program. The American Fulbright grantees under the program of the Foundation/Commission in other countries have been invited to give lectures in different fields on their way home. The value of this project lies in the fact that it supplements the regular program by meeting the various needs of cultural cooperation.

As a result of a survey of the special needs of its participating institutions made by the U.S. Educational Foundation in China last October, it was revealed that the most urgent need of the Chinese universities at present is the strengthening of their faculties by the recruitment of visiting American professors to teach in China. At the same time, the participating institutions also indicated that they had a no less urgent need to send more Chinese scholars to do research work in the United States and to obtain refresher courses in their disciplines. The need has become acute because of a 120 per cent increase in new institutions of higher learning and a 104 per cent increase in the enrollment of college students and the establishment of many new graduate courses in the universities during the past six years. In view of the growing demand for qualified faculty members, the USEF/C has already planned to raise the total number of grants from 47 to 56 for the 1961-62 program and from 56 to 86 for the 1962-63 program. These proposed programs continue to emphasize long-term support of Educational Exchange objectives. The major policy of the Foundation continues to be the promotion of science education in cooperation with other American agencies, especially ICA, as well as with the Chinese government and educational groups, which during the past year have set up a first five-year plan of a long-range program stressing the invitation of distinguished men of science from abroad to teach in Chinese universities.

In this connection, a word should be mentioned about another survey recently made by the Foundation of the educational exchange agencies other than the USEF/C in Taiwan. As disclosed by this survey, the programs of the other educational exchange agencies in the field of science are largely concerned with applied sciences. This warrants USEF/C giving priority to the pure sciences.

Another fact indicated by a statistical analysis of the survey is that only 21 out of 2,177 out-going grantees (.78 per cent of the total grants) sent abroad in the past ten years by various educational exchange agencies other than USEF/C were majoring in the field of fine arts and culture. It is expected that, regardless of its major policy emphasizing the importance of basic sciences, USEF/C will increase the number of grants for humanities and social sciences under the 1962-63 program when and if more funds are available.

In conclusion, better international relations depend on better international understanding, and better international understanding is built upon better cultural cooperation. Based on these premises, the furthering of a deeper knowledge and a more authentic understanding of the cultural values of other peoples should be deemed essential. The Republic of China, the true repository of contemporary and traditional Chinese culture, and the United States, a nation representing the modern Western culture developed to a very high level, should share with each other their own cultural values and thus help the advancement of human inquiry and scholarship. The Fulbright program, as mentioned before, is a part of this educational exchange service and therefore unquestionably plays a large role in creating a new world order and in promoting the welfare of the United States and China.

TEACHING AND RESEARCH OF ECONOMICS IN TAIWAN

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The purpose of this short paper is to report on the state of the teaching and research of economics in Taiwan in order to illustrate in some respects the situation that most of the social scientists are generally facing in our country. I hope it will shed some light on the problems with which we are confronted and render some help to this Conference in its deliberations on the ways and means to promote Sino-American cultural cooperation.

I.

For the past ten years, economics has been one of the most popular subjects studied in the universities and colleges in Taiwan. Indeed, if we take out engineering and medicine, it could be considered as the most popular one, since it has always had the largest student body on the campus. Take the situation in the National Taiwan University for instance. The total enrollment of the undergraduates in the academic year of 1959-60 for all 35 departments is 7,092, and out of this number 520 belong to the Department of Economics. Besides, there are four more institutions of higher learning which also have this department and face almost the same situation. Why is economics such a popular subject? There may be many reasons, but I think the following two are the main ones. First, the job opportunities for economic graduates usually are very good. Second, economic development in all the underdeveloped countries has become one of our most important national objectives, and this may have aroused so much interest on the part of many young men and women that it has induced them to study economics. Whatever the reasons may be, however, this kind of situation has really posed some serious problems for the whole faculty of economics. Of course it is quite encouraging for us because we shall have so much new blood joining and nourishing our profession annually. Yet it is also challenging because we do not have enough staff to take care of all these students. And so we are bound to increase our already heavy burden. Again let us take the National Taiwan University for example. For eight straight years we have not been able to recruit a single new member to join us. The faculty has been and is still composed of thirteen senior members. And, incidentally, the National Taiwan University is generally considered as the brightest spot in higher education on this island.

In this place, it might be appropriate for me to elaborate a little about the way that we are teaching the science of economics in our schools. As I have just said, there are five institutions which have departments of economics, and in the National Taiwan University we have another separate Department of Agricultural Economics in the College of Agriculture. Except for the Department of Economics in the National Taiwan University, which also offers a graduate program of study leading to a master's degree, the others are all on the undergraduate level. The way that the department is arranged is quite similar to that of its American counterparts. Not only are the courses offered almost identical, but their content does not differ greatly. Sometimes even a standard English textbook is used. This kind of practice, I should say, has both its merit and demerit. The merit is that by using a standard English textbook we can maintain a certain level of teaching which is not below the usual level that is to be maintained in the American universities. And if the students should like to go to the U.S. to do graduate work after they finish the four-year course here, they would easily be able to catch up with their American classmates. The demerit, however, lies in the fact that the students might not learn much about their own economic situation from the English books. For a student of social science, it goes without saying, it is of the utmost importance that he should know something about his own social framework. Furthermore, there are language difficulties to be taken into account. It would be much better, therefore, if a Chinese textbook could be made available to serve as the basic tool for every course on the one hand, and then some English works could be assigned as references on the other hand. Thus we could expect the students to learn faster and more efficiently; at the same time they could keep themselves abreast of the Western works in order to prepare themselves well for more advanced study and research later on. I should say this is just what we are endeavoring to do and we have made some progress.

If the teaching of economics at the undergraduate level could be considered as fairly satisfactory, then I think its teaching at the graduate level is not so satisfactory. The reasons may be listed as follows: First, all of the top members of our faculty are already busily engaged in undergraduate teaching, and that evidently leaves not much time for anything else, no matter how important it is. Second, the library facilities are not adequate. We have quite a good collection of fundamental and old works; however, the advanced, specialized, and recently published ones are quite lacking. Under such circumstances, it is only natural that the teaching and studying of the graduate students are not very effective. Then, here is a very interesting question to ask: Why don't we give up this graduate study program in the first place and devote all of the efforts of the faculty to the teaching of the undergraduates only? This, of course, is a very logical question, but it sounds pretty grim. As mentioned above, the enrollment of economics students is growing year after year, and our present teaching staff has been under great pressure from its heavy burden of responsibilities. If we do not try to train some more young men to take over a part of those responsibilities in the near future, we certainly shall find no way out of such a vicious circle.

After careful deliberations, we decided in 1956 to undertake a graduate study program in spite of, or rather because of, the unfavorable circumstances. In order to avoid placing too great a burden on the faculty and also to ensure a better training of the graduate students, however, we deliberately made it a policy to accept only four or five students a year through strict matriculation, and then require them to have a long period of residence in school, usually two or three years, before they could get master's degrees.

II.

Now let us turn to the research side of the situation. First of all, I would like to point out that in addition to the researches being carried out at the universities, there are many governmental agencies entering upon such work too, and there is also some research being undertaken through the joint efforts of governmental agencies and institutions of higher learning. I am going to deal with all of them.

At the universities, there are only a few professors who engaged in research on their own initiative before 1959, if we interpret research as a sort of work on a special project in a certain specialized field. They usually did such research at the request of some governmental agency and even for some international or foreign organization, such as the U.S. International Cooperation Administration MSM/C, the Joint Commission on Rural Reconstruction, the U.N. Economic Commission of Asia and Far East, etc. The main reason for this was the shortage of funds and other related facilities at the universities. This did not mean, however, that most of our colleagues were simply sitting in their armchairs and doing nothing. On the contrary, we were mostly very busy—busy in conducting classes in several universities and colleges, in writing articles on current issues, in editing popular books, and of course in reading new books and periodicals. Apparently some of the above-mentioned work was not too worthwhile. Nevertheless, the ever-growing number of youths resulting from the rapid growth of population has yet to be educated, and pressures of underpaid faculty members resulting from the long period of war and inflation have to be relieved.

Fortunately, the situation has been changing ever since August, 1959. At that time, an epoch-making organization was established, namely, the National Council on Science Development. The purpose of this organization is to provide financial aid for the improvement of the research climate in general. Every member of the faculties of the governmental institutions of higher learning can henceforth propose some research project in either natural sciences or social sciences and humanities to the Council and apply for aid to buy the necessary equipments and books. Moreover, he can also apply for a personal subsidy so as to relieve himself of extra teaching and devote more of his time to research. The funds of the Council come from both the Chinese government and the U.S. aid agency. This is a great help for us. I am sure that some results from these researches will be forthcoming, and the intellectual spirit will eventually be further promoted.

Generally speaking, most of the researches in the economic field that are now in progress at the universities are on theoretical and historical problems. There are very few which deal with urgent and directly practical problems. The latter are usually taken up by the governmental agencies, or at least done under the sponsorship of governmental agencies. Now I would like to say something along this line.

We have many governmental agencies concerned solely with economic affairs, such as the Ministry of Economic Affairs, the Ministry of Finance, the governmental banks, the public enterprises, etc. Within these organizations there are usually separate research units. Some of them have really done a wonderful job, but some of them have failed to show a very impressive record. Take statistical work for an illustration. The government has organized a special system of administrative hierarchy to take care of this—starting at the top from the central government down through to the provincial, municipal, and county governments. Nevertheless, I regret to say that the quality of their work is not very high. It is not the agencies directly concerned which are to blame. Of course some of the statisticians are quite poorly trained, and that has something to do with it. But, fundamentally, I think the reasons are as follows:

1. The significance of statistical work has not been fully appreciated by the general public, and sometimes even the governmental agencies themselves do not seem to give the proper respect to the statistical unit. They usually are reluctant to foot the big bills for the task.

2. Meagre pay for the statistical workers can seldom espouse an enthusiastic response to work. I would like to cite another example in this connection to prove my point. As I have mentioned above, there are some international organizations on the scene that are also interested in undertaking or sponsoring some research projects. These organizations are usually free from these handicaps. They have good leadership; they also have enough funds. Since they have both leadership and funds, it would be easy for them to carry out their duties. If they do not have enough competent men to perform certain kinds of functions, they can always recruit someone, or even many, if they are available, to take care of the work. So far as economic researches in Taiwan are concerned, the JCRR has been, and is, a very enthusiastic contributor; and the JCRR is a Sino-American organization supported by United States aid. Indeed, it is very interesting to note that most of the successful research projects that have been accomplished thus far have all been done through joint efforts of Sino-American intellectual cooperation in action. A few years ago, for instance, we undertook two extensive socio-economic surveys of Taiwan—one was about rural conditions, and the other was about urban and industrial conditions. Both projects were carried out according to the above pattern. The former was undertaken by the JCRR, while the latter was sponsored jointly by the U.S. Foreign Operations Administration, MSM/C (now renamed as the ICS, MSM/C), and the Department of Economics of the National Taiwan University. Last year a second survey of rural Taiwan was undertaken, and this time there were even more agencies involved. In addition to the JCRR, both the Department of Agricultural Economics of the National Taiwan University and the Departments of Economics and Political Science of the University of Hong Kong had joined; and The Asia Foundation also gave some financial support to the survey. So it really represents a project of international cooperation in a much wider scope. From these experiences, we may safely conclude that, though there is a shortage of competent personnel in Taiwan, still we could accomplish something if we could mobilize the limited resources available and keep them going.

III.

From the brief narration above, I think it is crystal clear that the most serious problem that we are now confronted with in teaching and research of economics in Taiwan is the shortage of personnel—especially competent personnel. Therefore, the strengthening of both the quantity and quality of the faculty should have top priority if we would try to do something in order to solve this dilemma. At present, the difficulty is not only that the members of our staff are limited, but also it is very hard to recruit new members, so the average age of the faculty is getting older and older, and this, by the way, is already fifty-three at the Department of Economics of the National Taiwan University. If we could have some way to solve this problem then it would not only give the present members some relief from their burdensome daily life so as to allow them to devote more time to research, but also it could enable them to better train more young men and women to meet the needs of the whole developing economy.

Therefore, I think, first, the following measures are extremely necessary and important if the funds required could be made available:

1. To invite some good and enthusiastic American professors or some excellent Chinese economists who reside now in the United States to come over as visiting professors for one or two years.

2. To select some promising junior members of the faculty and graduate students to go to the United States to study for one or two years.

3. To send a few senior members of the faculty who are still in the prime of life to the United States to do more advanced research for six months or a year so as to refresh themselves for better services for their students later on.

Second, in order to contribute something to the high cause of economic development and also to stimulate intellectual vitality, it seems to me that it is quite feasible to enlist well-qualified intellectuals to do some translations of the important Western works in economics and other social sciences. As I have said before, to promote and accelerate economic development has become one of the main driving forces in our national life. However, economic development is not a simple process. As is clearly shown in Western history, it cannot be expected to make any headway simply by technological methods alone. This can also be seen from our own bitter experiences in the history of the past hundred years. What is most urgently needed is a rapid change of outlook of the people in general. I am not one who advocates Western ethnocentrism. There are certainly many social values in our culture which are well worth preserving. Moreover, it goes without saying that to achieve the goal of economic development is not to form a mere replica of Western culture in our country. Nevertheless, if we really want to make economic development a success, then there are certain basic valuations of Western civilization that should definitely be imported, together with its modern industrial techniques. I think it is of prime importance, especially during the early stage of economic development, to make the people appreciate the industrial way of life and the essence of the capitalist philosophy of preference for productive investment. To achieve this, there is at least one thing that the intellectuals could do, and that is to indulge in an extensive and systematic program of translations of Western works, particularly those relevant to our present situation.

In our academic circle, it seems to me translation work has not been as highly respected as it should be. Usually it is considered to be second-rate work. That, I think, is most unfortunate. The example of Japan might well prove the fallaciousness of such an attitude. As we all know, the patterns of life of the Chinese and Japanese peoples are quite similar, and in many ways, even identical. Both peoples came under intensive Western pressure at about the same time (China in 1840 and Japan in 1853). But Japan became a first-class industrial power in less than seventy years, whereas China has remained the same for a whole century. The reasons for this are, of course, complicated and varied. I think, however, one thing that has counted a great deal in making the difference is that the Japanese have done, and are still doing, a much more thorough job in absorbing Western civilization and have brought about a fundamental change in the outlook of the people. How did they do it? Translation of Western books is certainly one of the ways. In Japan the translation business has always been very prosperous and thriving. Obviously we could not expect the common people to read the original Western works, and the common people would not close their ranks for any high cause until they understood it. Moreover, any movement is doomed to failure unless it can enlist the support of the common people. That I believe is one of the most crucial reasons why we are still way behind in our modernization movement. If my observation is right then I should think it would be most advisable for this Conference to do some evaluations along this line. It certainly is a field for Sino-American intellectual cooperation.

Finally, in spite of those difficulties that we are encountering, it is the duty of the economists to enter upon some basic researches for the benefit of economic development. Recently there is a general trend of thinking that if the underdeveloped countries desire rapid development for their economies, it is extremely necessary for the state to play a positive role in the developmental planning. But careful and effective planning needs concrete and exact data for its base. Although we have prepared some, yet, as I pointed out above, both the quantity and the quality of the work done are so inadequate that it really leaves much to be desired. We do not have enough empirical knowledge, for instance, with regard to such technological data as capital-output ratio, capital-employment ratio, and such psycho-sociological data as demographic factors, people motivation, etc. To fill these gaps in our knowledge we will need fresh and elaborate research projects; and obviously some of them should be interdisciplinary in nature. Economists alone could not do the job well. Their training is much too narrow to take care of many of these tasks. It was in the light of this situation that we cherished an idea last year of setting up a Research Center on Economic Development in the National Taiwan University. We hoped that this could serve as a forum for discussions by our colleagues and experts outside of our University, and also that we could enroll some graduate students to study this rather broad field. Needless to say, it was again hampered by the same deficiencies of our resources, so it still remains in the planning stage. Therefore, I would hereby submit this idea to this Conference for consideration and for discussion.

A PAPER ON SINO-AMERICAN INTELLECTUAL COOPERATION

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For most of the traditional social sciences and the new behavioural division of the social sciences, "mankind" has been confined largely to the West. If you read any standard textbook in economics, political science, psychology, sociology, etc., almost all the illustrations and examples are Western.

Obviously, this is a result of the United States being a part of European culture and might be defended by pointing out that for most of American history such an emphasis was justifiable in terms of the realities of political power, national needs, and interests. Now, however, such an emphasis can no longer be defended. In fact, it is in the interests of none of us to have the average American student obtain his Bachelor of Arts or Sciences without being exposed to those areas of the world which lie outside the traditional West.

Many possibilities offer themselves to the American student and permit him to spend a year or more abroad, taking with him his parochial views of his particular discipline to have those views expanded by experience in other cultural environments. However, most of the opportunities are for Western Europe, and the number of fellowships or teaching positions available for other regions is inadequate when the enormous task of reorienting the social sciences toward a true world view is considered. As a consequence, American citizens, required by the exigencies of their time to act upon questions of policy in areas of Asia, Africa, and the Middle East, do not have the rudimentary knowledge necessary to understand the problems. The United States Government, undertaking the largest technical assistance program the world has ever known, must rely upon people whose technical competence is vitiated by their inability to transfer effectively their technology into other cultural milieux.

It therefore behooves us to consider, not only the necessity for bringing to this country social scientists from other cultural environments in order that they might study at our universities and learn our techniques, but also to expand our program for sending American social scientists abroad. Even now tools of research are being developed in American Social Science, tools which appear to have universal applicability to the developers but which, if transported abroad, would either be useless or would turn up unreliable results. Yet, unless there is a sufficient body of social scientists with experience abroad, our own social scientists will continue to believe that their techniques, which work so well in their own societies, are everywhere workable. The possibilities for miscalculations and misjudgment and the corresponding consequences for American foreign policy are incalculable. Thus, the horizon of social science must be broadened to include the world as it now is, and not the world as it was fifty years ago. If it is true, as has been said, that generals always plan to fight the last war, it might be said that many social scientists have a tendency to develop methods appropriate for the study of the prior century. New approaches for the expansion of the exposure of social science students to cultures other than Western need to be examined and present approaches revised and made more efficient. For example, exchange programs with foreign universities involving field study for undergraduate students of outstanding ability will be a fruitful course for training future social scientists. Such programs are being considered and are, in fact, in operation in modest ways, but can be greatly expanded with good result. U.S. technical assistance programs, which are based upon the assumption that American technical assistance is being exported to societies which have very little to give in exchange, should be revised.

During my own experience with the Indiana University Thammasat contract in Bangkok in 1955-58, I was constantly frustrated by the fact that we were limited in attempting to transfer technical skill to our counterparts, but the U.S. government frowned upon us when we attempted to make use of the contract to better fit Americans for use in the country in which we found ourselves. Specifically, I found that we were not able to bring any American students for research on the contract after the first two, as the U.S. government did not deem this an efficient use of aid money; yet those initial two graduate students made a great contribution to the contract while in operation and are at present faculty members at two American universities, transmitting their experience and understanding to hundreds of students who in turn will be better fitted to play a responsible role in American society as a result of their exposure to the experience of these two men.

It would be possible to cite innumerable examples of ways in which almost any social scientist, whatever his interest, could have his insight sharpened by an opportunity to work and study in another environment. As far as the parochial limitation of American textbooks is concerned, the examples are so numerous that nothing more explicit need be said.

My conclusion is that technical assistance and intellectual exchange are definitely two-way streets. We will better be able to help others when we better understand them, and the great cultures and civilizations that lie outside the West have much to offer to the social scientist in the way of insight, analytical tools, and new philosophical vistas.

THOUGHTS ON SINO-AMERICAN INTELLECTUAL COOPERATION

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For many years, scholars of both China and America have endeavored to strengthen the ties between the two nations in the hope that our cultural heritages, though different, would bring benefits to both when intelligently interplayed. However, even today, with the exception of a few scholars of Sinology, the Western world seems to know little of the real Chinese culture. The greatness of Chinese literature, art, social structure, and political philosophy are practically unknown to most westerners. To many of them, especially Americans, the word "Chinese" is understood only in association with "chop suey," "laundry," and "high-slitted dresses," just as for many Oriental people "America" is seen only through Hollywood movies.

In the field of natural sciences, however, China is unquestionably lagging behind in research facilities and personnel, and for this reason, the question of cultural cooperation in this field is of particular interest to us Chinese.

Having made several visits to Formosa, and on one occasion lectured for two months in Tsing Hua University at Hsin-chu, I had the opportunity of observing at first hand the developments in various cultural fields in Formosa. In the following I shall enumerate several ways in which cultural cooperation between China and the United States is possible, necessary, and can, in my opinion, be beneficial to both countries. Except for a brief general remark at the end, this discussion will be limited to the field of natural sciences.

My experience of working with students in Tsing Hua University convinced me of the great potentiality of Chinese students in scientific and technological fields. This, of course, has already been well borne out by the achievements of Chinese scientists and engineers in this country. However, the shortage of up-to-date research equipment and qualified professors in these fields is quite serious in most Formosan colleges. Aided partially by the United States Atomic Energy Commission, Tsing Hua University is newly equipped with a Van der Graaff accelerator and a swimming-pool reactor, both being valuable modern research equipment in nuclear physics. Such programs may very well be extended to more Formosan universities and cover other research facilities, including books and journals. In most American research laboratories there is surplus equipment which, although not of up-to-last-minute design and quality, is nevertheless quite modern and serviceable, and there are duplicate sets of books and journals lying around. A program may be set up by which these pieces of equipment and books may be sent to Formosan universities and research institutes.

The program of exchange professors in the field of natural sciences will be chiefly the establishment of grants or scholarships for American professors and research personnel to take leaves of absence or sabbatical years to assume lecturing or research-directing duties in Formosan universities. The attractiveness and advantage of such opportunities for the researcher should be clearly pointed out. While there, he can carry on his own research with equipment familiar to him in his own university or laboratory, having almost unlimited zealous, dependable, and well-trained student assistants, but without the usual trouble of crowded scheduling. All these advantages, to say nothing of the semi-tropical vacation-land climate and environment of Formosa and the pleasure of lecturing to a group of intelligent and sincere students.

Scholarships could be established so that Chinese students can come to the United States to further their education and training in American graduate schools. Nearly all Chinese graduate students are intelligent, industrious, seriously intended, and very personable. They are valuable assets to any graduate school.

The geographical location and the climatic condition of Formosa make it an ideal place for setting up specific research stations. Those which come to my mind immediately are cosmic-ray, geophysics, satellite tracking, meteorology, fishery, oceanography, agriculture, and anthropology research stations. It is obvious that such programs are beneficial for the development and advancement of sciences in both China and the United States.

Now a few words about cooperative efforts between China and the United States in the fields of the social sciences and the humanities. Because of geographical and language barriers, Chinese literature, art, music, religion, and social philosophies have not attracted their proper share of interest in the Western world. Since the last war fragmentary samples of Chinese cultural developments have been relayed in distorted forms to the United States through Japan. It should be realized that almost every Far Eastern culture has in one way or another been influenced by or derived from the Chinese culture. The appreciation of Chinese culture furnishes the background knowledge for understanding all other Asiatic cultures. Thus, it is worthwhile for scholars interested in Oriental cultures to obtain first-hand knowledge from the source of origin.

Similar programs, such as those suggested for the field of natural sciences, may be employed here also, except the emphasis would be on inviting Chinese scholars to lecture in this country and on establishing scholarships to enable American students to study in Chinese universities.

The realization of these programs would better the mutual understanding and strengthen the intellectual ties between the two nations, and accelerate the cultural development of both.

MUSIC AND THE CULTURAL EXIGENCY IN FREE CHINA

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In the early days of the year 1601, Fathers Matteo Ricci and James Pantoja of the Society of Jesus reached Peking and presented to the Emperor Wan Li a few gifts calculated to impress the Chinese sovereign with the special accomplishments of Western civilization. Small though this impression may have been, the gesture is of remarkable significance as inaugurating a new era of world history—the invasion of China by the Western world, a movement of ideas whose ultimate consequences are as yet unpredictable. Included among the presents offered by the Jesuits were paintings of Jesus and Mary, a crucifix and breviary, an atlas, several clocks, and a clavichord. Trifling gifts to be sure, and yet how prophetic of that coming invasion in its several aspects: the religious, the scientific, the esthetic. The objects representing the latter two aspects, we recall, stood for ideas which were at that time only at the beginning of their modern development in Europe itself. The clavichord was used at that time to accompany voices, for independent instrumental music was only just beginning to be conceived by the violinist-composers of Italy. Ricci and Pantoja were commanded to give instruction in Western musical performance to eunuchs of the Imperial College of Music. Since the clavichord was used to accompany madrigals, Ricci also devised Chinese verses to several Italian compositions, and eventually the Chinese musicians performed these madrigals for the Emperor.

Despite this early introduction of Western music to the Chinese Court it must be admitted that the esthetic ideas of the West were to have relatively little impact on the Chinese world, especially as compared to the influence of religious and scientific ideas. Conversely, while the social and philosophical ideas of China have had significant—though often unrecognized—influence in the West, it is only within the past half century that Chinese esthetic principles have been admired and utilized. (We are not concerned here with the period of *chinoiserie* which was based on European fancies more than Chinese facts.) Perhaps it is in the realm of esthetic principles that understanding and empathy are most difficult in intercultural relations. First to be taken in by the West were the representational arts of East Asia; then there has been some influence in the creative literature of certain genres: and only within the very latest years has there been any serious attempt to get at musical esthetic. Ironically, at this juncture, there suddenly arises the serious question as to the very survival of the Asian musical tradition in the face of the sudden tidal wave of Western music.

One of the most remarkable cultural phenomena of the post World War II years has been the wholesale conversion of young people throughout Asia to Western music. Whereas in previous times there has never been more than a handful of musicians trained in the Western tradition, and hardly more than two handfuls of the public interested in that tradition, today the situation is radically altered. The most striking and best known case is, of course, Japan, which has within the last fifteen years become a major concert area for touring Western artists; but the eagerness of young Koreans and Chinese in Taiwan for Western music is no less a fact. In Taiwan, among the local-born population, there is just now beginning only the third generation of acquaintance with Western music; while of course there is a somewhat more substantial background in the case of the Mainland refugees. In any case, however, it is the young student generation which is attracted to this music, rather than their parents and grandparents. Along with a brisk sale of the latest popular music recordings from the American "top hit" lists, there is always a heavy attendance of students and recent graduates at concerts in Taipei. It is significant also that the older generation of performers, who frequently appeared before the public eight or ten years ago, today can hardly venture to compete with their own students, not to speak of foreign artists, because the standards have in this short time risen so markedly. This, of course, should be a cause for self-congratulation among these older musicians, who can rejoice in the fruit of their pioneer labors.

So far as Western music is concerned, then, the general situation in Taiwan is as follows: For the general public, there is much broadcasting of both popular and art music. Concerts are frequent, but facilities are poor. There is only one air-conditioned and sound-proofed (to some extent) hall, which is the Taipei City Hall (Chung-shan T'ang). This seats about 2,000, and so far as music is concerned, is utilized mostly by artists coming to Free China under the auspices of the U.S. State Department (the so-called President's Program). Local musicians can rarely get the use of this hall, where the charges are high, and the management is mostly concerned with non-musical events. Then there is the gymnasium-auditorium of the International House, which also accommodates around 2,000, on folding chairs. This hall, described by one foreign artist as a warehouse, suffers from the acoustical and other drawbacks common to such combination gymnasium-auditoriums in countless high schools throughout the United States. A third hall is the National Arts Hall, which holds only 600. Finally, there is the auditorium of the Normal University, which seats 900 and is acoustically the best. However, this hall was built back in Japanese times as a high school facility and is still equipped with the tiny wooden seats of that period. It is also considered to be unsafe in view of its age and poor physical condition in earthquake-prone Taipei. These facilities have been described in some detail in order to point up the great need for a good concert hall in Taipei which will seat at least 2,500 persons, will have air-conditioning so essential in such a climate, will be acoustically excellent, and will be available to both foreign and local artists under a management devoted to the furtherance of cultural activities.

As for the training of musicians, there is one college-level department of music (in the Normal University) and one band training department for the military in the Political Staff College. Music departments also exist in several secondary-level institutions. However, only the Normal University may be said to give instruction on an international standard. This department has about one hundred and thirty students and a faculty of about thirty. It has made steady, though slow, progress over the past ten years, and satisfactory training is now given in theory, piano, and voice. Instrumental music has been lacking, but the acquisition of a small number of orchestral instruments this summer will enable the department to initiate instrumental instruction the coming term. Among the urgent needs of this department are suitable physical facilities (in common with many an American college, the music department is to be found occupying the smallest and poorest quarters on the campus) ; music scores for all instruments, chorus, and ensembles; instruments; and visiting instructors, particularly for instruments. Upon the quality of the graduates of this department depends the raising of musical standards throughout Free China, because these graduates are destined to positions as teachers in the middle schools. It is also from this department that the future leaders, not only in music education, but also as performing artists, will come because its graduates are among the few students who have an opportunity for advanced training abroad.

Among performing organizations, the most important—at least potentially—is the Provincial Symphony Orchestra, supported by the Provincial Department of Education. Founded in Japanese times, this orchestra has continued to the present, but unfortunately a combination of factors has prevented it from attaining a satisfactory degree of accomplishment. At long last, in fact within the past two months, the Department of Educaion has decided to take steps to put this organization on its feet. A new director has been appointed, the best-trained and most experienced musician in Taiwan, and additional funds have been promised for the purchase of new instruments, erection of a modest rehearsal hall, and general betterment of the musicians' situation. There is no reason why, given proper financial backing and competent direction, the Taiwan Provincial Symphony Orchestra should not develop into a musical group of the same good standards and potential as the two orchestras in Seoul, which have had just as great economic difficulties as a background.

At a lower level the improvement of the musical situation awaits some years of preparation and financial help. The schools generally give students opportunities for participation in group singing, and some have brass bands. A private teacher in Taipei has formed a Youth Symphony which is giving a much-needed opportunity for group work to a small number of students, and there are small amateur organizations elsewhere as well. At the Provincial Music Contest finals in Taichung last April, the judges observed that the abilities of performers in the younger age bracket were quite good, while after the mid-teens the level declines sharply. This would seem to indicate that there is a fair amount of good private teaching on the elementary level, but that private teachers able to handle advanced students are still lacking. Another problem is the concentration of teachers, facilities, and musical events in the capital as against the other population centers; this is, of course, common enough in many countries.

Other factors affecting the musical scene include the following: for one, the impossibility of purchasing adequate instruments in Taiwan. There are some locally made instruments, but they are so poor in quality that even for students they are not suitable. The same applies to most imported Japanese instruments. It is also impossible to find any but the most commonly used scores, and these are confined almost entirely to music for piano, violin, and solo voice. A third factor of crucial importance is the imposition by the Tax Bureau of a 30 per cent amusement tax on concert tickets, thus bracketing concerts with movies and girlie restaurants as "entertainment." The practical result of this tax is an infinitestimal revenue gain for the government and the stifling of concert activity by local artists, who can hardly make more than a few hundred New Taiwan dollars of profit after deducting expenses and paying this heavy tax.

On the positive side is the encouragement given by the increasing tempo of concertizing in Taiwan by foreign artists. While a good many of these come under official American government sponsorship in the program of cultural propaganda, there are nowadays also some commercially sponsored concerts, as for example during the past six months, those of Ruggiero Ricci, American violinist; Joseph Bloch, American pianist; and the Vienna Academy Chorus. In particular, if the Provincial Symphony Orchestra can be developed into a good organization, it may be expected that the concert season in Taipei will begin to take on the aspect of an important feature of the cultural life of Free China.

Chinese music is also represented by several important activities. To this observer's mind the most significant of these is the Fu Hsing Drama School, located in the Taipei suburban resort of Peitou, where some one hundred twenty boys and girls have, since 1957, been receiving a strictly disciplined training in the traditions and techniques of *ching hsi,* or Peking Opera. This school seems to offer the solitary example of that sort of long, rigorous, dedicated professional training that is necessary to produce real artists in any field. The key problem is the economic one, not only in the matter of support for this school and other training schools, but also in the matter of employment of graduates. Conditions in Taiwan now apparently do not admit the maintaining of an opera house where performances can go on regularly, and which can thus stabilize the employment of actors, musicians, and other personnel. Performances are given on an occasional basis, and much of the activity in the Chinese drama is carried on by troupes under the financial sponsorship of the Chinese armed forces. One factor in the situation is the inability of the local-born populace to understand the language of *ching hsi* or to appreciate its tradition as against their local dramatic tradition. This situation will, of course, change as the years go by and more and more Taiwanese understand *kuo-yü.*

Other forms of Chinese music are perhaps not so easily organized and fall more into the category of chamber music; but there are several orchestras which are trying to utilize traditional instruments and melodies in a modern way. The best of these is the Chinese Orchestra of the Chinese Broadcasting System. There is some possibility that the present single course in Chinese music included in the curriculum of the Normal University's Department of Music will be enlarged to include a minor or even a major in the field. However, the same problems face us here as in Korea; for example: first, the lack of standardized notation for this music; second, the lack of really qualified teachers; and third, the lack of incentive to students to specialize because employment opportunities are practically non-existent. To these three must be added what was mentioned in passing above: that is, the great wave of enthusiastic interest in Western music, and an equally notable apathy toward traditional Chinese music among young people. If this is more than a passing phase, Chinese music faces consignment to the status of a museum curiosity, and all artificial efforts to promote it will be abortive. It would seem, in any case, that special efforts in the form of both governmental and private support are necessary to preserve the tradition.

On the international scene, China obtained membership in the International Music Council of UNESCO in 1958. Internally there is a National Music Council which is supposed to include a majority of professional musicians and teachers. Lack of funds has, however, practically paralyzed this organization, which has received neither government assistance nor private subsidy in amount sufficient to accomplish anything. A number of music students have gone abroad in recent years, but there has been little benefit from them thus far to Taiwan. Perhaps the most promising activity along this line is the sending of students to Japan, which nowadays is able to provide quite satisfactory advanced training. Several of the most capable young instructors in the Normal University are returned students from Japan. This year two scholarships are being given for such training by joint action of the National Music Council and the Provincial Department of Education. Perhaps it is not necessary to explain that training in Japan has the advantage not only of nearness and economy, but particularly that students who go there are more likely to return to Taiwan than to make their careers abroad.

As this is a conference on Sino-American cooperation, I should conclude this paper with practical suggestions. The word "intellectual" is also included in the Conference title, and I have heard that some intellectuals are convinced that musicians, so far from being intellectuals themselves, are not, as a species, even very bright. It is also a fact that among the distinguished representatives in the area of the humanities at this Conference there are none representing the fine arts except my humble self. A check with *Webster's Unabridged Dictionary* informs me that the humanities includes "the branches of polite learning regarded as primarily conducive to culture"; which, by its use of the word "polite" in such a quaint sense, led me to feel that the lexicographer involved in this definition has no very serious view of such learning. This is hardly the place to enter into a defense of the humanities, but it is perhaps the place to say a word about that final and key word, "culture."

There is an official propaganda film which perhaps a number of this group may have seen, entitled "Fortress Formosa." It is this title which typifies, one fears, a stereotype of Taiwan in the minds of people abroad. It does embody, to be sure, the central concept of official United States relations with Free China and the guiding principle of American cooperation with Free China. "A strong link in the defense of the Free World" is a common way of phrasing it. I daresay the image of Taiwan among the general public in the United States would be something like a grim-faced soldier in steel helmet standing with bayonet at the ready against the threat of Red forces across the strait. Now of course the most basic and sacred duty of a government is to maintain its freedom, and there is no need to speak here about the political-military situation of the Republic of China.

What does need saying is that Taiwan is a place important for itself, regardless of the larger political-military situation. It is a place larger than Holland, larger than Israel and Lebanon combined, larger than several American states. Its population includes more than ten million people, most of whom are not standing with bayonets at the ready in the front lines. Short of an all-out assault by the Chinese Communists—which need not be considered here since this would obviously lead to all-out world war—it would seem that the military defense of Taiwan is in good shape; in fact we reached a military stalemate some time ago, as is indicated by the failure of the Reds to take even the highly exposed positions of the Republic of China directly off Communist-held shores. As to the foundations of the economy, the success of the Land Reform Program has given Taiwan a standard of rural prosperity unequalled in Asia except for Japan, according to common report. In general, the economic progress during the past decade is truly remarkable, and there is every indication that the government intends to concentrate its efforts to accelerate this progress in the future.

But unless a country exists on the philosophy of ancient Sparta or the feudal state of Ch'in, farming and war are scarcely the be-all and end-all of the state. Even economic prosperity in itself may lead to a vicious cycle of supply and demand for luxuries and hence to decadence—unless the economic resources, the time, the intelligence, and the ideals of a people are devoted to those pursuits which make man human and not animal: the intellectual, the artistic, the spiritual. It is high time to come down to cases, to begin to develop inside the military-economic security of Free China a culture worthy of the glib propaganda phrases which have for some time been current: "Free China, repository of Chinese culture"; "Free China, beacon of hope for Chinese civilization." It is time, that is, that we should concentrate not merely on assuring security of living in Taiwan, but that the living should be worthwhile. This is a matter not only of theoretical desirability, but even of political viability. The young generations pushing up in Taiwan require to live not by rice alone. Ideas and ideals are the natural endowment of youth, and like a volcano, the forces will not be pent up, but will burst out one way or another.

I suggest to this Conference, therefore, that the kind of support and cooperation which should be expected from intellectuals of both sides, is now timely and vitally necessary. Regardless of the particular field, needs are great in Taiwan, and the problems are crucial. The development of good musical opportunities in schools and concert halls may be just as important from this point of view as encouraging new industries or modernizing the air force. Life cannot forever be grim, grey, and "dedicated to the political objectives of the Free World." This is a "culture" which is only tolerable to Communist theory. The rapidly increasing devotion to music among Chinese youth is evidence of their hunger for something satisfying in the realm of the spirit, for a release from tensions and frustrations, for some temporary absorption into the healing and exalting environment of abstract beauty and truth.

From American intellectuals, Free China may hope for understanding of this situation; and the Chinese music-loving public may hope for some practical assistance in such ways as the following:

1. Sending of instructors to teach, particularly in the Normal University.

2. Offering of scholarships adequate to enable talent to receive advanced training abroad.

3. Encouragement of American artists to include Taiwan in their tours.

4. Financial support to the National Music Council to enable a series of projects to be carried out throughout Taiwan.

5. Donations of music, books, instruments, and equipment to the Normal University and the Provincial Symphony Orchestra; ideally the establishment of a small music library with rental or borrowing service.

6. Financial support towards the construction of a center for cultural events, to include a good concert hall, studios, and provision for performance of Chinese opera.

For the time being, Sino-American cooperation in the music field must be pretty much a one-way traffic. However, there is much work to be done in the study of traditional Chinese music by both Chinese and foreign students. One graduate student has been studying *ching hsi* for several years in Taipei, and encouragement to studies in this largely unexplored area would be desirable. It is likely that a conference on musicology, at which experts from China, Japan, and Korea could come together with a few foreign experts to discuss particularly the basic problem of notation, would be feasible and most useful.

Whichever way the helping hand is extended, it will be grasped on the other side with real appreciation, and in the nature of things intercultural, he who gives shall sooner or later receive.

PROPOSALS SUBMITTED BY LAURENCE G. THOMPSON

1. *Exchange of Persons.* Fulbright and others should be revised to include artists, musicians, other humanists.

2. *Equipment.* Musical instruments and scores are particularly needed.

3. *Building.* "Center for Performing Arts" to complement research center for social sciences and humanities.

4. *Shows and Exhibitions and Concerts.* Individuals and groups going from the U.S. to Taiwan and from Taiwan to the U.S.

5. *Journal.* International journal of literature and arts (cf. University of Hawaii's *Philosophy East and West*).

6. *Grants to Individuals.* Support of artists and humanists to free them for study, practice, creation; the individual as against the Projects; small grants as against big grants to institutions.

7. *Departments.* Establishment and support of departments of art and music in universities other than Normal University in Taipei.

INTER-INSTITUTIONAL COOPERATION

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Several American universities are already on record concerning the usefulness of the exchange of faculty with Chinese universities for purposes of teaching and research, and several exchange programs have been worked out and are under way. My own experience as visiting professor of history at National Taiwan University in the spring and summer of 1959 leads me to believe that such inter-institutional cooperation ought to be continued and, if possible, expanded. Others are better able to judge the usefulness of bringing Chinese faculty to American institutions, and therefore my remarks bear only on academic movements in the reverse direction.

In the sixty-two years which have elapsed since Huxley's works on evolution began to be translated into Chinese, the Western impact on the development of Chinese ideas has been especially pronounced. That impact was felt through translations of Western books in China, the enrollment of Chinese students in Western universities, the activity of Western missionaries in Chinese educational life, and visits of American academics to Chinese universities, among other ways. The lectures given by John Dewey at Peita and other Chinese institutions forty years ago are the most striking illustrations of the last-named channel, but there are others. The total result was to deepen a ferment in the thinking of educated Chinese which has never ceased, and is likely to continue for some time. The questions of what elements, if any, in the traditional Chinese culture are to be saved under the relentless pressure of Westernization, and what elements, if any, of modern Western culture are to be incorporated into the pattern of Chinese thought and life (aside from the technological and, in general, the practical devices and mechanisms which have already been assimilated and doubtless will continue to be)—these questions have agitated Chinese intellectuals for over half a century.

From my limited observations in Taiwan last year, it did not appear to me, however, that conditions were such as to give full opportunity to educated Chinese there, especially the younger faculty and students, to continue to examine these questions in the manner which would seem to be necessitated by the developments of the past decade or more in China. Appropriate channels through which consideration of such matters could fruitfully occur seemed few or nonexistent. The understandable and justified weariness which afflicts many of the older generation of Chinese intellectuals is one obstacle (just as the inextinguishable and continuing mental resilience of a few is heartening and hopeful). The persisting uncertainties of Taiwan's international position interfere. The financial and political pressures which limit and condition the way that many intellectuals live their everyday lives are a problem. The ambitions of some of the ablest students to continue their education abroad, while giving little thought to their relationship to Taiwan's future or that of China as a whole, make matters difficult.

It must be said, however, that external difficulties are not an unprecedented or wholly new aspect of the situation in which such questions pose themselves in China, nor do the particularly pressing difficulties of the moment foreclose the possibility of instilling new vigor into the intellectual life of the free Chinese in Taiwan and elsewhere. Whether such a possibility can be realized obviously depends to a large extent on the Chinese themselves. However, Westerners (and for the purpose of our discussion, Americans) also can play a part.

Moreover, it may be argued that Americans have a positive obligation to play a part. I do not now have in mind questions of treaties, alliances, or inter-governmental relationships. Rather the ground for such a contention should be found, in my view, in past intellectual influences which Americans have directly or indirectly exerted on the Chinese. Americans have intruded some of the doctrines of Christianity, pragmatism, social Darwinism, "scientism" (which I should define as the application of the techniques of the natural sciences outside of the natural sciences themselves), democracy, and socialism onto the Chinese scene. If it be argued that some of these doctrines were not intended for export generally, or to China in particular, the response may be that doctrines formulated in such a manner that the limits of their applicability are not clarified are unsatisfactory doctrines, and that the question of "intention to export" is irrelevant. If certain of the doctrines mentioned had been worked out or applied by Americans who had the entire world context firmly in mind, their enunciation might have been more cautious, and therefore their application even in America itself more judicious. One might illustrate from the way that Dewey's instrumentalism was formulated, by his followers especially, so that principles which were intended as correctives within the Western philosophical tradition were sometimes crudely stated as being generally applicable. As a result, American education itself was both benefited and harmed, but on balance harmed more than benefited; and reckless damage was done elsewhere of a sort which might well have alarmed Dewey himself. Even though he traveled and lectured abroad, Dewey was thinking chiefly in American terms, and they were not broad enough.

Americans cannot disavow responsibility for the exportation of ideas which they have sponsored or made possible in the past. The correctives they might now seek to introduce might be unwelcome or unacceptable to the Chinese who have earlier experienced Western intellectual influences. That is the affair of the Chinese. I believe that this does not at all mitigate the responsibility of American intellectuals to state their views and findings in a manner which clearly reflects their consideration of how such views may be applied in a variety of differing intellectual and social contexts, including the modern Chinese context.

Many will agree with Dr. Hu Shih when he spoke in 1934 of "the necessary undermining and erosion without which there could not have been the rejuvenation of an old civilization"; or, perhaps, many will agree that a certain amount of "erosion" was unavoidable and desirable and will add that Western ideas played an imporant part in that erosion; and yet one must face the melancholy fact that the hoped-for "rejuvenation" lies still in the future. Therefore, if Americans are not to renounce the possibility of playing a more successful part in such "rejuvenation" than heretofore, they must necessarily consider carefully the channels suitable for doing so.

Exchange for exchange's sake may have temporary and superficial benefits and even delights, as it may sometimes produce temporary and one hopes superficial feelings of repugnance and offense. Exchange for exchange's sake, one may suspect, is a notion characteristic of part of the current American scene, a kind of projection of the pseudo-ideal of "togetherness" and the more seriously meant but possibly more dangerous ideal of "adjustment" into the international scene. At such a conference as ours I assume that we wish to consider what exchange may accomplish, rather than attribute to it some sort of unanalyzed inherent magic. I have suggested a very broad and fundamental kind of aim, from the American side, for faculty exchange; the aim of giving American intellectuals the opportunity to make good past carelessnesses and obtusenesses in carrying their own parochial ideas abroad without sufficient reflection; the aim of permitting them to confront the challenge of defining means and ends in a manner reflecting the consciousness of the need to be intelligible and relevant in various societies, in this connection the Chinese society, rather than assuming *a priori* the ideological and institutional identity of all humankind. It seems to me less important to speculate at this point as to whether that aim can be achieved than to ask whether it is defensible and whether it is worth attempting.

The Chinese philosopher, Liang Shu-ming, wrote in 1947, "The fundamental task of politics lies in the cultural problem. . . . If a solution is not found for that, it will be impossible to bring about accord on political questions." Some Americans may feel that this statement, intended to apply to contemporary China, may also apply to certain problems of current American foreign policy. The "cultural problem" needs solution if political measures are to be more than palliatives, not only in China, but certainly there. Sun Yat-sen once declared his intention to persuade his countrymen that "action is easy and knowledge is difficult." He found it difficult, indeed, to achieve that intention, as some American intellectuals may feel it difficult to persuade their own countrymen of the validity of Dr. Sun's contention. However, for such a group as is here engaged in discussion, the difficulty and indispensability of knowledge, thought, and reflection on first principles may be self-evident as prerequisites for developing the sort of inter-institutional cooperation which all of us desire.

MY RECOLLECTIONS OF THE CHINESE POLITICAL SCIENCE ASSOCIATION (Peiping)

by TINGFU F. TSIANG

PERMANENT REPRESENTATIVE OF THE REPUBLIC OF CHINA TO THE UNITED NATIONS

My active participation in the activities of the Chinese Political Science Association covered the years from 1929 to 1935. During those years, I was the editor of the Association's quarterly publication, *The Chinese Social and Political Science Review.* I also served as a member of the Association's Board.

The Association was a nongovernmental joint Chinese-American popular organization. Among its founders were, on the American side, Dr. Paul Reinsch, who was at the time the American Minister to China appointed by President Woodrow Wilson; and, on the Chinese side, Dr. W. W. Yen, who served several times as the Foreign Minister of China and as Ambassador to the Court of St. James and to Washington, and Dr. Y. T. Tsur, who was the President of Tsinghua College, as it was then called.

The Chinese and American governments agreed that a sum from the Boxer Indemnity payments should be set aside to pay for the cost of a building and as an endowment. Once that was done, a self-perpetuating Board of Trustees was to have full control of the activities.

Min-sheng Ku, a site in the eastern part of Peiping, was selected. On this site, a substantial but moderate-sized building was erected. It provided a lecture hall, seating about 150, a conference room, a public reading room, and room for bookshelves.

The Association devoted itself to three lines of activities. First, it maintained a library. The books and periodicals selected for purchase covered the fields of political science, international law and international relations, economics, and, to a lesser degree, history, sociology, and anthropology. In the years immediately following World War I, the library served a good purpose since similar facilities did not exist in Peiping. Later the library of the National Peking University was enlarged and China Foundation built the Metropolitan Library of Peiping. The library service of the Association became, therefore, less important, but in later years, the librarians in Peiping developed a scheme of division of labour. While some duplication was unavoidable, the library continued to serve a limited number of interested students.

In the second place, the Association arranged periodical lectures by scholars in the social and political science fields who happened to be visiting Peiping or by public men who had some scientific interests. The most important lecture given in the lecture hall of the Association, which I still remember, was the one given by Prof. R. H. Tawney of the London School of Economics. Tawney had come to China to make a general survey of the social, economic, and political situation. After a year's travel in China, I suggested that he should embody his conclusions in a public lecture under the auspices of the Association. I remember the keen interest shown by both Chinese and foreign listeners. He had been a well-known Fabian socialist and great scholar. Many of his listeners anticipated that he would give a prescription for the ills of China along the lines of Fabian socialism. To the surprise of all, after the lecture was over, nobody present could have detected any trace of Fabian socialism. It was remarkable that Professor Tawney brought to his study of China such a fresh, keen, and objective mind. He said many things that evening, but the one point that stuck in my memory was his advocacy of the constitution of a nuclear region which should serve as the center for the unification of a new China. In the nuclear region, he thought that China should and could afford to introduce modern administration and modern methods for the improvement of agriculture, industry, and handicrafts. In other words, he advocated the unification of China, not by force, but by the application of modern science, including social and political science, to the problems of China.

The third line of activity of the Association was the publication of a quarterly in English. The articles for publication must have some relation to China and must deal with subjects in the social and political science fields. It was not a first-class publication, even during the time of my editorship, but I think it served a good purpose. So far as its pages permitted, it introduced the work of some Chinese scholars to the West and of some Western scholars to their Chinese colleagues.

Among the articles published during my time, I recall especially two. One was an outstanding and authoritative article by Dr. Hu Shih on Zen Buddhism. The other was the first substantial contribution of Prof. George E. Taylor in the field of Chinese history. The specific subject of the article was "The Taiping Rebellion"; the author may have forgotten it, but I have not.

As I make these recollections, I have one reflection. I think that the Association should and could have made a greater effort in bridging the language difficulty. As it was, the lectures were all in English, the quarterly published also in English, and the library kept only English periodicals and books. A Chinese scholar not versed in the English language could not have availed himself of the services of the Chinese Political Science Association. We Chinese are rather timid when it comes to the use of foreign languages. When we do not speak a foreign language well, we try to hide our shortcomings by keeping quiet and avoiding association with foreigners. Although the American people are not shy generally, they are very shy in trying to speak the Chinese language. Any association created to serve the public that the Chinese Political Science Association was created to serve should provide interpreters and should encourage people who cannot speak to each other to communicate, if necessary, by the medium of interpretation. After all, cooperation and understanding among people who do not understand each other's language is even more necessary and more important than cooperation and understanding among people who can converse with each other.

REMARKS ON THE COMPARATIVE STUDY OF CHINESE LAW

by Arthur Taylor von Mehren
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I.

The comparative study of law can be undertaken with various objectives in mind. A scholar may, for example, seek detailed information on certain areas of foreign substantive law. Again, his interests can be primarily jurisprudential or historical. Or he may be seeking a better understanding of the institutions and processes of growth of his own legal system. These objectives do not exclude each other—though, of course, differences in emphasis will flow from one's primary concern. Indeed, a mastery in fair detail of some part of the law of the legal system under investigation is essential before jurisprudential or historical work can be fruitful. Conversely, a knowledge of the detailed rules of a particular area of substantive law is of little practical value unless informed by insight into the processes of growth and development of the system under consideration and by an understanding of the habits of thought current in that system.

II.

To apply those generalizations respecting the comparative study of law to the comparative study of Chinese law would require far more knowledge of China, its culture and history, than I possess. However, in the interest of stimulating discussion, I venture here a few remarks on the problem.

In view of the United States' present economic and political relations with Taiwan and the Mainland China, it would appear that neither jurisdiction's law was particularly important in terms of commercial intercourse. One of the strong, "practical" motivations for studying foreign law thus does not appear to exist in the case of Chinese law. Therefore, it would appear that, at least for the immediate future, scholarly work in Chinese law is likely to pursue essentially jurisprudential or historical concerns. It must not be forgotten, however, that such work, quite aside from its own importance, will lay an essential foundation for increased political and commercial intercourse with Mainland China when world conditions permit.

What contributions, then, can work on Chinese law make under contemporary conditions? Two among doubtless many possibilities are suggested below:

1. The study of the legal component in culture tends to be neglected in work that deals with societies within the Western European tradition. This neglect is not too serious in so far as the assumption can safely be made that the societies in question have roughly similar notions of the role of law and roughly equivalent ideas of justice. Once, however, one begins to concern oneself with a culture outside the Western European tradition, these assumptions are no longer valid and the underlying questions become

crucial. For a society's legal order expresses, and at the same time conditions and transmits, many of the society's most basic attitudes toward social life and individual worth. From legal institutions, rules, and practices, we derive perhaps our best insights into fundamental assumptions that shape vast areas of a society's life.

The student of Chinese society can thus hardly ignore comparative study of Chinese thinking about the manner in which disputes are to be regulated and about the proper content of norms regulating conduct. Such investigations will give him an insight into points of difference and similarity between traditional Chinese society and the corresponding periods of Western European society. In addition, such investigations will provide a scale against which to measure the degree and direction of the breakdown of the traditional society. Have the society's ideas respecting law and the legal order changed? If so, in what degree and in what direction? A comparative approach in these terms to Chinese law thus both helps to formulate the relevant questions and places the information then gathered against a background, the experience and attitudes of other societies, that can assist materially in its understanding and evaluation.

2. One of the most important, and perhaps most dangerous, of contemporary political and social developments is the Communist society of Mainland China. An understanding, to be gained through comparative study of the law and legal system of Communist China, is obviously of great importance.

In the first place, international relations on the political level are, in considerable degree, carried on within a framework of legal categories and forms. It is obviously important to know the significance and content which others assign to the categories and forms that we and they use.

Secondly, a comparative study for Communist China of the role of law, and of the values expressed in law, should help to give us a more precise picture of the direction in which the society is moving and of its morale. What problems of social control are considered most crucial; to what extent is it sought to handle these problems through legal sanctions; what groups are given legal recognition and protection? Questions such as these should, if the material is available to study them, give us considerable help in forming a picture in detail and depth of just what is going on inside Communist China.

III.

To conclude these brief observations, I should like to raise the question of what can be done to stimulate the comparative study of Chinese law. So far as I am informed, very little, if anything, is being done in this direction today. This situation can hardly be tolerated much longer. The importance of China and the China question is too great for us to afford the luxury of ignorance with respect to Chinese law.

The difficulty is that the comparative study of Chinese law tends to fall between departmental stools. The law schools, in spite of some interest, lack personnel with the special equipment required to study Chinese law. (If the Chinese language were no more difficult than French or German, I dare say the law schools would do better.) The departments of Far Eastern studies have the language specialists, but these persons lack professional training in law. Consequently, few, if any, scholars are today equipped to do the job.

For the foreseeable future, it is my guess that the study of Chinese law will, for the most part, have to be carried on in the departments particularly concerned with China. The organization of the law schools, and their goals and student bodies, are such as to render unlikely any large-scale effort directed toward Chinese law. This does not mean, however, that many law schools would not welcome an opportunity to cooperate in comparative work on Chinese law and would not be willing to offer a seminar or small class on the subject. However, it does not seem likely to me that law schools will, for the foreseeable future, be making appointments in this field.

If, therefore, teaching and research positions are to be developed for Chinese law, they will probably be within the departments of Far Eastern studies. These departments should, if possible, in collaboration with their university's law school, begin to think most seriously about establishing and staffing such positions.

So far as the staffing is concerned, young scholars are needed with a training in both Chinese studies and law. Such combinations can be developed by encouraging promising students in one discipline to take up the other as well. As academic positions become available for persons with such a training, they can be produced.

It may also be useful to consider whether it would be desirable to work out arrangements under which a certain number of American law professors could get a general insight into Chinese law. My own experience with Japanese law suggests to me that something can be done even without a knowledge of the language. I spent an academic year (1956-57) in Japan under the auspices of the Fulbright Program and the Japanese-American Program for Cooperation in Legal Studies. While in Japan, I, in collaboration with Japanese colleagues, worked out and conducted two cooperative seminars. One was called "The Judicial Process," the other "The Reactions of Legal Systems to Social and Economic Change." Each was directed to a type of problem that is revealing with respect to the role of law in a society. I presented the American experience, and my Japanese colleagues the Japanese experience. The sessions, especially when supplemented by conversations, gave me most helpful insights into Japanese law. Of course, it is not easy to work out such a program; I was greatly helped by a group of younger Japanese scholars and judges who had spent two years in the United States under the auspices of the Japanese-American Program for Cooperation in Legal Studies and who know both American law and English. I do not know whether comparable arrangements could be made for American scholars on Taiwan, but the question is perhaps worth exploring.

MEDICAL EDUCATION AND RESEARCH IN THE REPUBLIC OF CHINA

by Wei Huoyao, *Dean*
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I.

Introduction

The Province of Taiwan, restored to China after the ending of the Sino-Japanese War in 1945, consists of the island of Taiwan, which has a total area of 13,837 square miles, lying in the Pacific Ocean, 100 miles away from the China Mainland, and the Penghu (Pescadores) Islands (49 square miles) located in the Taiwan Straits. The Tropic of Cancer runs across about the middle of the island of Taiwan and the Penghu Islands as well. A central mountain range extends lengthwise closer to the east coast of Taiwan.

The population of the Province at the end of 1959 was about 10,430,000 people, 85 per cent of whom are living on the western plain of Taiwan and about 1 per cent on Penghu.

There are 4,154 qualified doctors, 2,780 nurses, 1,861 midwives, 741 dentists, and 735 pharmacists registered in the Province (1958). Excluding military medical facilities, there exist 23 provincial hospitals (12 general, four branch, one maternity, one children's, two tuberculosis sanatoria, two insane asylums, and one leprosarium), 17 city and county hospitals, and one university hospital, providing a total of 4,155 beds (1960), besides 64 private hospitals having a total number of 966 beds (1958). Throughout the Province we have 3,554 private clinics, 779 dental clinics, and 1,612 herb doctors' clinics. In addition to these, 22 health centers and 359 health stations are scattered all over the Province.

The following province-wide programs have been conducted since the restoration day by the government, with support of the U.S. Aid, the World Health Organization, and/or the United Nations International Children's Emergency Fund to control the major diseases prevalent in this densely populated Province.

Malaria control

By using residual insecticide application to houses and by treating the diagnosed as well as the suspected cases, malaria has almost been eradicated. In 1951 the annual malaria incidence was estimated to be over 1,200,000 with 11,000 deaths reported, in a populace of 7.87 millions. But in 1956 and 1957 only 488 and 434 cases, respectively, with no deaths in either year, were reported.

Tuberculosis control

Since 1947 tuberculosis mortality has declined from about 285.2 deaths to 54.4 deaths per 100,000 population. To date 7 million persons have been tuberculin tested, 4 million vaccinated with BCG and 2 million X rayed. Over 10,000 open cases are registered and treated gratis.

Venereal disease control

Since 1953, 2,260,000 serologies have been taken and 71,600 patients have been treated free of charge for syphilis by laboratories and clinics. Cases of gonorrhea, lymphogranuloma venereum, and chancroid have also been treated.

Trachoma control

In 1954 the trachoma control program was started, and since then over 2.5 million children have been examined for trachoma infection. Free treatment has been given to infected children by trained doctors and nurses as well as by teachers in the schools.

Maternal and child health

The Maternal and Child Health program was initiated in 1952. Its activities include small-pox, Diphtheria-Pertussis-Tetanus (DPT) and BCG innoculations, midwife deliveries, pre- and post-natal examinations and care. A large number of medical officers, nurses, and midwives of the health stations have been trained under this program.

With the above mentioned disease control programs, especially the very successful program of malaria eradication, with the marked improvement of water supply and environmental sanitation, and with the betterment of medical and health care facilities, the death rate has dropped from 17.57 per 1,000 population in 1947 to 8.34 in 1957. However, the birth rate remained almost the same during the past ten years (37.09, 48.97, and 40.81 per 1,000 population in 1947, 1951, and 1957, respectively), which accounts for the rapid increase of population (3.25 per cent or more increase of population annually). Consequently, this has become a socio-medical problem of this Province.

II.

Medical Education in Taiwan

At the present time there are three medical schools in Taiwan: National Taiwan University College of Medicine (NTUCM), National Defense Medical Center (NDMC), and Kaohsiung Medical College. A second private medical school will start enrolling the first-year premedical students this coming fall, and a third private one is being planned, to be set up in a few years.

The National Defense Medical Center was established in Shanghai soon after World War II, and was evacuated to Taiwan in 1949. This Center consists of four schools (medical, dental, nursing, and pharmacy) turning out graduates with the degree of bachelor, primarily for military services. Vocational courses and medical technical training courses are also offered by this Center.

The private Kaohsiung Medical College was started in 1954. It consists of three schools (medical, dental, and pharmacy) and will send out its first class of medical graduates, numbering about sixty, this summer.

The National Taiwan University College of Medicine is *the only national medical school now giving both undergraduate and graduate training of health personnel for serving the general populace of Taiwan.* It dates back to 1945 when the island was restored to China after the ending of the Sino-Japanese War. Its forerunner, originally known as the Taiwan Government Medical School, was established in 1900 and reorganized in 1919 and again in 1936. In the latter year it became the Taihoku Imperial University Faculty of Medicine, offering a four-year course to those who had successfully completed four- to five-year secondary plus three-year preparatory education. In 1945, a six-year medical curriculum—one-year pre-medical, four-year medical and one-year rotating internship leading to the degree of B.M. was adopted. In 1949, the pre-medical course was raised to two years, making the whole course seven years. More recently special emphasis has been placed on laboratory work and bedside clinical teaching in which the student participates, and on the teaching of preventive medicine and public health, using community facilities.

During the past 14 years many improvements have been effected. Buildings of the college and the teaching hospital, damaged during the war, were repaired and new ones added. The following new departments and institutions were established:

1946: Department of Radiology

1947: Institutes of Pathology and Physiology (with three Divisions: Physiology, Biochemistry, and Pharmacology)

1951: Institute of Public Health (giving in-service training courses to health personnel)

1953: School of Pharmacy (four-year course leading to the degree of B.S. in Pharmacy)

Taiwan Serum and Vaccine Institute (cooperation with the Provincial Health Administration)

1953: Expansion of College Library

1955: School of Dentistry (six-year course, with two-year preparatory course included, leading to the degree of B.D.S.)

1956: School of Nursing (four-year course, leading to the degree of B.S. in Nursing)

School of Medical Technology (four-year course, leading to the degree of B.S. in Medical Technology)

1958: Children's Mental Health Center (a joint institution with the Provincial Health Administration)

1959: Taipei Public Health Teaching and Demonstration Center (a joint institution with the Provincial Health Administration and the Taipei Municipality)

In addition, the College, together with its Hospital, possesses 19 departments of pre-clinical and clinical instruction. The present faculty consists of 36 professors, 31 associate professors, 42 instructors, and 36 teaching assistants.

The enrollment for the academic year of 1959-60 totals 1,048 students; 644 medical, 66 dental, 169 pharmacy, 56 medical technology, 95 nursing and 18 in postgraduate research. The College and Hospital have also played an important role in providing refresher courses for the health personnel of the island.

Apart from its regular budgets and special appropriations by the Ministry of Education, the College has received substantial aids from many organizations such as International Cooperation Administration (ICA) of U.S., World Health Organization, China Medical Board (CMB) of New York, American Bureau of Medical Aid To China, and others. These contributions include scientific and hospital equipment, books and journals, fellowships, visiting consultants and professors, and cash grants for building construction and other purposes. The most significant result from such generous support, no doubt, has been the building and training of a medical faculty of selected men and women who have now reached maturity and independent judgment of the mind, capable of doing effective scientific work in their chosen specialities and devoted to the pursuit of teaching and learning and the practice of medicine and public health.

The present level of our medical undergraduate education has been shown by our graduates in their comparative high rates of passing successfully the examinations given by the Educational Council for Foreign Medical Graduates of the U.S.

III.

MEDICAL RESEARCH

Scientific research is indispensable in modern medicine and medical education. Brief summaries of publications by members of each department of NTUCM are now available in English. They will give a general picture of the research activities of the faculty. The following is a selected list of studies currently undertaken or under planning at the College (NTUCM):

1. Etiology of Hepatoma and Naso-pharyngeal Carcinoma. Particularly prevalent among the Chinese.

2. Tissue Culture Techniques. Interaction between local polio-virus recently isolated and Taiwan monkey kidney cells.

3. Action of snake venoms on striated muscle and chemistry of their neuro-toxins.

4. Effect of snake venoms on the central nervous system.

5. Relationship of the function between the sub-commissural organs and the Reissner's fibers and the electro-microscopic structures of both.

6. Physiology and Pharmacology of Vomiting.

7. Goiter Survey and Control. The disease is prevalent in many parts of the island. The incidence runs as high as 70 per cent among school children in certain areas. It is an important public health problem.

8. Prevalence and Etiology of "Black Foot Disease." It is characterized by spontaneous gangrene of the extremities, especially the feet. It occurs in a limited area in southern Taiwan. It involves both sexes of any age except infants and young children.

9. Trachoma. A joint investigation with the U.S. Naval Medical Research Unit No. 2 (NAMRU 2) in Taipei has succeeded in isolating the virus and in preparing a vaccine. Clinical trials are undertaken in testing the prophylactic efficacy of the vaccine.

10. Nutrition Surveys. Examinations of school children and other age groups have shown several types of nutritional deficiency such as riboflavin, thiamine, vitamin A, iron, and protein. Research is being done to prepare a complete baby food of high protein content and quality from a vegetable source such as soy bean, which is now being produced locally in increasing quantities.

11. Parasitic Disease Surveys and Control. Stool examinations of school children reveal high prevalence of parasitic infestations, especially hookworm, ascarid and trichuris.

12. Physical Anthropology of the Aborigines. There are seven native tribes, with a total population of about 140,000, who are believed to be originated from Malaya and the Philippine Islands and/or the southern part of China, living in the mountains leading a primitive life. Many physical anthropological studies on these aborigines have been published.

13. Mental Health Survey. A survey of mental health of 30,000 persons in Taiwan is planned.

As the National Taiwan University College of Medicine rapidly grows from year to year, the requirement of more and better laboratory facilities for scientific work increases. This has become a serious concern to the faculty, especially among the departments of basic medical sciences. Lately it has been proposed that a Central Research Laboratory be established to meet the needs of members from both pre-clinical and clinical departments who are engaged in basic medical research. A new building of three stories will be erected this summer within the premises of the College, including an animal house and a machine shop. The Laboratory will be provided with up-to-date scientific equipment and organized into physical, chemical, histological, and micro-biological units, according to scientific techniques rather than departments of instruction. This plan would eliminate duplication of expensive equipment which may be used by more than one department. At the same time, it would promote cooperation and team-work among specialists of different disciplines, which are frequently essential in medical research. This plan has been supported by both ICA and CMB.

The Department of Psychiatry and the Institutes of Pathology and Public Health have expressed their wish that a central statistical processing unit be set up to serve their needs. Recent arrival of a visiting professor of epidemiology and biostatistics in the College, sponsored by CMB, will encourage increasing use of statistical methods and machines.

Aside from cooperation with NAMRU 2 in scientific research, this College, through the Department of Pathology, also has cooperated with medical institutions in the U.S. in their research by: (1) Sending bone ashes of local people to the Columbia University Department of Geology for the study of content of Sr 90. (2) Sending aortas of autopsied bodies to the Department of Pathology of Louisiana State University for the study of atherosclerosis. (3) Making joint study on choriocarcinoma with the Armed Forces Institute of Pathology.

IV.

SUMMARY

The medical schools of Taiwan have for the past decade received considerable assistance from the U.S.A., governmental and private, for the improvement of medical education and research. There are still many urgent needs for which we require more aid, both material and technical, and more cooperation in scientific medical research between the two countries for the promotion of the health of mankind.

SUGGESTIONS FOR INTELLECTUAL COOPERATION

by C. MARTIN WILBUR
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My experience with intellectual cooperation between Chinese and Americans has been a very personal one, and my hopes for the future center about cooperation between individuals and small groups.

Americans seeking to understand Chinese civilization and history need the advice of Chinese scholars and teachers. Our universities and colleges have many Chinese faculty members who make a distinctive contribution to our academic life. As one who has spent most of his adult life studying Chinese history and culture, and writing and teaching about these subjects, I am aware of a great debt to Chinese friends from whom I have learned most of what I know. Our universities and colleges will continue to welcome Chinese scholars. Their knowledge of Chinese culture and their personal involvement in it far exceeds that of most outsiders. Yet Americans perhaps can help a little, too, by the questions they ask.

An example of intellectual cross-fertilization at Columbia is the University Seminar on Modern China. This seminar has about twenty-five members of faculty rank from several universities, colleges, foundations, and research organizations. About a third of us are Chinese. Some of the Americans were born and educated in China. In our three years of meeting together we have become close friends. If our study of "Continuity and Change in Modern China" has had any useful result—and I think it has—it is mostly due to the free interchange of knowledge and ideas between the Chinese and American members. I wonder if in Taipei there might be organized a seminar on Modern America, with Chinese and foreign scholars meeting regularly for mutual enlightenment. More broadly, the University Seminar idea, as developed at Columbia, might be of considerable interest to our Chinese friends.

The University Seminars are faculty level groups which meet regularly to study some broad problems of continuing concern such as Research Methods in the Social Sciences, Labor-Management Relations, the Renaissance, War and Peace, etc. There are over thirty of these voluntary groups, made up of faculty members from many institutions, as well as businessmen, officials, journalists, and other professionals—all with a common intellectual interest. They add a vitality to the university community and are forums for intellectual growth. Our Modern China Seminar has done much to draw together scholars in the New York area with this common concern.

Another cooperative venture at Columbia is the Chinese Oral History project, of which Prof. Ho Lien and I are co-directors. We are trying to learn and preserve for the future what we can about modern Chinese history through extensive interviews with eminent Chinese and through research. The enterprise is entirely based upon cooperation, with an American university acting as patron for the study of China's recent past, with the intention of benefiting future scholars of all nationalities. We should like to find a way to cooperate with similar projects in Taiwan or Hong Kong. Such cooperation must be based upon mutual confidence, but the confidence develops through actual cooperation.

At the East Asian Institute of Columbia we have tried to have a visiting Japanese or Chinese scholar each year. They have helped to educate our students, have refreshed the faculty's knowledge of Asian affairs, and they provide a tie when they return home. Our Asian friends seem to enjoy the year with the Institute, too. To maintain this program of visiting scholars requires advanced planning, special funds, and more administrative work than most people would imagine. The visiting scholar naturally has his own objectives for the year in America. Both his interests and those of the host have to be fulfilled for the arrangement to be mutually satisfying. We could discuss whether it is more useful for the visiting Chinese scholar to settle down in one American institution for most of the year, or to travel widely and visit many institutions throughout the year. From my experience, the first plan has much more valuable results for the host institution and possibly for the visitor too.

I wish that the financing for such academic visiting could be put on a firm basis so that Chinese and other Asian scholars could regularly come to serve for a year or two on American faculties. Such a "reverse-Fulbright" arrangement could be as valuable to the Asian university sending a faculty member as to the American university receiving him.

There are vast archives of Chinese history in Taiwan that American scholars and libraries are eager to microfilm. In fact there is an undercover competition for the privilege. Perhaps there is competition, too, between Chinese agencies for control of this microfilming. Our Chinese colleagues may not be entirely aware of the important materials in this country concerning Chinese history which might also be microfilmed for their use. The Library of Congress and Gest Chinese Library at Princeton have rare copies of ancient Chinese books. The State Department Archives are rich in records of diplomatic relations between China and America from the late eighteenth century down to the present. They contain many original Chinese documents. They are generally open to scholars, and microfilms can be procured. The Photoduplication Service of the Library of Congress has negative microfilms of about 2.5 million pages of archives of the Japanese Foreign Ministry and Army and Navy Ministries. The published check lists show that a great deal of this material is about modern China. Positive copies of the microfilms may be purchased at cost by our Chinese friends, with no more formality than ordering a book. We wish it were equally possible to get microfilms of collections in Taiwan.

Since each side has much archival material to offer the other, some plan should be worked out for cooperation in microfilming. This is surely not too great a problem for scholarly institutions, foundations, and governments to think through, finance, and implement.

These examples of cooperation between Chinese and Americans only lift a small corner of a very large subject. The past has seen complex cooperation between our two peoples in education, trade, war, relief and rehabilitation, international conferences, research of all sorts, and in the work of the United Nations. Our scholarly cooperation can have a bright future, too.

INTERNATIONAL COOPERATION IN THE STUDY OF CHINESE HISTORY

by LIEN SHENG-YANG

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The following observations are made only at random. Although they concern chiefly the study of Chinese history, or Sinological studies as a whole, it is hoped that they may apply to some extent also to other disciplines.

1. Chinese and American historians have strong points that can be mutually complementary. In my opinion, the Chinese historian tends to be stronger in documentation and compilation, and the American historian in interpretation and comparison. The former is likely to be more resourceful, and the latter more imaginative. These strong points can certainly reinforce each other when the Chinese and American scholars are brought together. Moreover, it is important for them to check each other so that one will not occupy himself only with individual trees at the expense of a study of the forest and others will not mistake some clouds in the sky to be forests on the horizon.

2. Linguistic barriers exist but can be overcome. Neither Chinese nor English is an easy language to master. Chinese is probably the more difficult, if the term includes not only colloquial Chinese but also literary, or classical, Chinese. Fortunately, there are already a number of American scholars, both senior and younger ones, who can handle the Chinese language with considerable competence. Also, there are enough Chinese scholars who can express themselves adequately in English, although not necessarily always in a highly polished style.

3. Cooperation can be maintained between individuals, institutions, or individuals and institutions. Well established institutions, such as colleges, universities, research institutes, museums, libraries, and archives, of course, should be fully utilized. An important institution that is still underdeveloped in China is the organization of learned societies. For instance, I am not aware of any real counterparts of the American Historical Association, American Oriental Society, or Association for Asian Studies in China, not to speak about the American Council of Learned Societies. Only recently I read in the newspapers about the formation of a Sinological Society to meet monthly in Taipei. I hope this is a beginning. In addition to regular meetings, a learned society should also publish a scholarly journal, which should

include not only articles, but also critical—but constructive—book reviews, bibliographical notes, and news of the profession. The prestige of a learned society or its journal, however, cannot be established overnight. It takes planning, perseverance, and above all, a genuine spirit of cooperation.

4. Cooperative projects of long and short terms should be devised. Perhaps one can begin with existing projects, such as the Sung History Project centered in Paris, which is actually international, and projects already under preparation, such as the Ming Biographical Dictionary Project in this country. These projects can bear fruit more readily. Other projects can be added; *e.g.*, to write a history of China for the last thousand years, say from 900 or 960 to the present, or to compile a comprehensive dictionary of terms and/or names in Chinese history. Pioneering or pilot projects especially should be encouraged.

5. To secure government or foundation support, it is normally easier to have projects initiated through institutions rather than by the individuals directly. Here is again the need for organization. An example of project-initiating organizations is the China Council for East Asian Studies in Taiwan. It was organized at the suggestion of the Harvard-Yenching Institute, which provides it with a modest sum for projects of research. Parallel councils have been organized in Korea and Japan. It is, however, the policy of the Harvard-Yenching Institute that these councils should feel free to make arrangements with other foundations or the government as well.

6. A center for humanities and social sciences in Taiwan, as proposed, will have a very significant role to play. The center at the beginning need not be enormous or elaborate. Modesty and flexibility perhaps are more desirable. A center with headquarters and a secretariat can serve as an immediate point of contact for visitors, and as a permanent point of contact for all concerned. It can become a pivotal organization for intellectual cooperation. To say the least, it could serve as a clearing house for bibliographical and biographical information.

7. Intellectual cooperation between Chinese and American scholars can and should be extended to become cooperation between all scholars in the world. Knowledge and wisdom are international.

ENGINEERING EDUCATION IN THE REPUBLIC OF CHINA

by YEN CHEN-HSING, *President*
TAIWAN PROVINCIAL CHENG KUNG UNIVERSITY

The characteristic of engineering education in higher institutions is to cultivate specialists in respective fields with emphasis on basic sciences, comprising mathematics, chemistry, and physics, in cooperation with the applied engineering sciences, for the need of a country's industrialization and economy. The development of engineering education in the Republic of China is exactly leading to this objective. As a matter of fact, this country has never had a sufficient number of well-trained engineers. Up to this moment, the proper action has been taken by the Chinese government, which has placed engineering education next to none. Adequate supporting funds are provided for, when needed, and the great demand for engineers in rapidly expanding industries certainly shares the merit of our engineering education development. At the present time, there are four higher institutions offering engineering courses. They are:

1. *Engineering College of National Taiwan University.* Located in Taipei. Comprised of four engineering departments; namely, the Department of Civil Engineering, the Department of Mechanical Engineering, the Department of Electrical Engineering, and the Department of Chemical Engineering.
2. *Engineering College of Taiwan Provincial Cheng Kung University.* Located in Tainan, it comprises seven engineering departments; namely, the Department of Mechanical Engineering, the Department of Electrical Engineering, the Department of Chemical Engineering, the Department of Mining and Metallurgy, the Department of Civil Engineering, the Department of Architectural Engineering, and the Department of Hydraulic Engineering.
3. *Tunghai University.* Located in Taichung, it offers, under its College of Liberal Arts and Science, courses in Chemical Engineering.
4. *Chung Yuan College of Science and Engineering.* Located in Chung-Li, this College offers courses of instruction in the Departments of Civil Engineering, Hydraulic Engineering, and Chemical Engineering.

In the engineering departments of the above-mentioned institutions, the academic and credit system is commony adopted. Engineering students are requested to complete four academic years, and also the required number of credits. The B.S. degree will not be conferred until a student has completed a thesis satisfactory to his supervisor and has passed the necessary military course, which, however, offers no credits. In addition to the above requirements, engineering students are still requested to actually participate in industries or field work during summer and winter vacations. This is usually arranged by universities or colleges. For instance, Taiwan Provincial Cheng Kung University stipulates 120 days of field practice for each student as a requirement for graduation.

Needless to say, our engineering education is somewhat handicapped due to the past chaotic situation and needs double efforts to keep abreast with the present state of science in Western countries. In this respect, our education authority has started and achieved a number of educational projects with the assistance of the U.S. government. One of them, which is remarkably noted, is the cooperative project between Purdue University of Indiana and Taiwan Provincial Cheng Kung University. The project was initiated for the purpose of improving engineering education at an institution where training of Chinese youth for industry takes place and where its contribution is so vital to the industrial and economic development of the Republic of China. The method chosen to accomplish this aim was that Purdue University should provide a small number of American professors to station at Cheng Kung University for consultation and advice in connection with improvement of engineering education, and Cheng Kung University should select a large number of Chinese teachers, with the concurrence of Purdue University and the Chinese government, for one year of training and observation in the United States. These two categories of workers magnificently cooperated in an all-out effort to improve the Engineering College of Cheng Kung University, upgrading its standards. Through this project, CKU graduates today are making a name for the institution in the graduate schools of the United States. The other distinctive feature, which produces magnificent results, is the establishment of relationships between the engineering college and industries. This brought to a focus the efforts of the University to be of service to industry and to the public at large for the benefit of both the public and the University. Every department of engineering of the University is a participant under this program.

Under the sponsorship of the Chinese Institute of Engineers, our education authority has started an accreditation program which brings together and harmonizes the demand and supply of engineers. It started with the recommendation of Purdue advisers because of the fact that a number of industries complained that they were unable to employ qualified engineers, but on the other hand, many young engineering graduates claimed that they had difficulty in finding suitable jobs. This was called to the attention of our education authority; immediately this accreditation program was initiated to remedy the situation by organizing a group of professional engineers to accredit and screen the curricula prevailing at engineering colleges and universities to ascertain if the courses they are offering are suitable to the needs of industries or if they need revision.

In consideration of meeting the increasing demand of our industry, graduate schools have been established during the last few years for the purpose of promoting research and cultivating engineering teachers. At the present, Cheng Kung University offers graduate courses in mechanical engineering, civil engineering, and electrical engineering. We are not satisfied with this right now, but financial difficulty prevents us from further expansion. However, in another four or five years, we will have a complete graduate course for each engineering branch.

SINOLOGICAL REFERENCE *DESIDERATA*

by T. L. YUAN
LIBRARY OF CONGRESS

In the study of China, the problems of Chinese names, both personal and geographical, often baffle Sinologists. There are at present no standard works of reference in Chinese or Western languages which satisfy adequately the requirements of the specialists. Specifically, at least three reference tools are urgently needed: first, a scholarly general dictionary of Chinese biography; second, a scholarly geographical dictionary; and finally, an Encyclopaedia Sinica.

In the field of Chinese biographical dictionaries, the works of Prof. Herbert A. Giles and Dr. Arthur W. Hummel remain the only available general reference tools. The first, compiled between the years 1891 and 1898 without the help of Chinese scholars, contains a considerable number of inaccuracies; in spite of its wide scope, the presentation and selection of material also leave much to be desired. The second is a monumental work, published in 1943-44. Scholarly and well documented, it contains only 800 biographies of the last three centuries and is therefore limited in scope.

Obviously, the proposed new dictionary, designed primarily for Western readers, need not be as complete as one would expect from a similar compilation in Chinese. But in view of the magnitude of this task, it is necessary to embark on a cooperative undertaking that should ensure the active participation of specialists in their respective fields.

For a geographical dictionary of China, we have at present the *Chung-Kuo ti-ming ta tzŭ-tien*, published in 1930 by the National Academy of Peiping, and the *Chung-Kuo ku-chin-ti-ming ta tzŭ-tien*, published in 1931 by the Commercial Press. Both works are inadequate by academic standards. On the other hand, the Board on Geographical Names in Washington, and the Permanent Committee on Geographical Names in Great Britain have made decisions on thousands of Chinese place names. Although these decisions have been of great value, they are based solely on governmental designations without any regard to references in history, in literature, or in every-day usage. Such being the case, we are now in need of a new geographical dictionary of sufficient scope to incorporate the latest research on place names in China. A great reservoir of geographical knowledge exists today; it should be examined and utilized to compile a standard dictionary.

Apart from these two deficiencies, an up-to-date and comprehensive encyclopaedia on China in English should be the goal toward which progess in Sinology can be measured. The *Encyclopaedia Sinica*, published by the late Samuel Couling in 1917, is not only long out of date, but is no longer an encyclopaedia in the modern sense of the term. Yet, in spite of its shortcomings, it remains the only encyclopaedia in English on China today. If most of the articles could be rewritten in the light of recent researches, or a brand new encyclopaedia be compiled, it could be made an authoritative work not only for the general reader, but also for specialists in Chinese studies.

In conclusion, it should be emphasized that there is a genuine need for these three projects. With the active cooperation of Chinese and American scholars, these very necessary Sinological tools could become a reality. It should be obvious that financial support is essential for the planning and execution of this work.